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Welcome

It's widely acknowledged that recreating the human figure – in whatever medium – is one of the most challenging artistic endeavours you can take on. However, it's also one of the most rewarding and endlessly fascinating subjects for any creative, as the history of art bears out.

As with most other subjects, using digital media can make the process quicker and less bewildering. Programs such as *Poser* provide unparalleled flexibility for experimenting and studying the human form. Yet without a firm knowledge of anatomy, an eye for detail, and plenty of patience, your *Poser* figure will always end up looking like... well, a *Poser* figure.

In this issue of *Computer Arts Projects*, we'll reveal the techniques you need to create stunning faces and figures no matter what your chosen medium.

Get to grips with pro retouching techniques in *Photoshop* – remove wrinkles, re-sculpt a body, or learn how to take more effective shots. If 2D illustration is more your thing, we'll show you how to make the most of *Painter*, delve into the secrets of vector drawing, and master tricky areas, such as human hands. And in the third dimension, you can learn how to model a convincing head and body, discover *Poser's* intricacies, and give your characters a decent head of hair. The perfect body is just a few pages away.

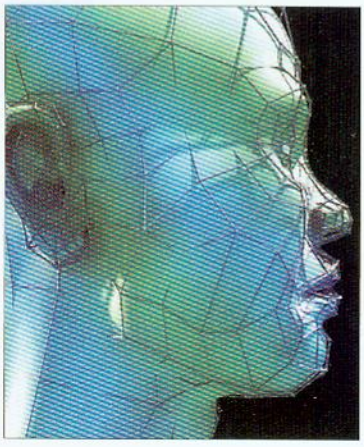
Tell us what topics you'd like to see covered in-depth in *Computer Arts Projects*. Contact us on **capeditor@futurenet.co.uk**

Contributing artists

Tom Ang

Tom is an expert on colour management, digital photography and *Photoshop*. He is Senior Lecturer at the University of Westminster and his books include *Advanced Digital Photography*, *Photoshop for Photography* and the forthcoming *Private Album*. His Website is launching soon.

[w] www.tomang.com



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[w] www.dereklea.com

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We're always on the lookout for new artists as well as established creatives – so if you're interested in contributing to the magazine, please send some examples of your work to **[e] richard.llewellyn@futurenet.co.uk**

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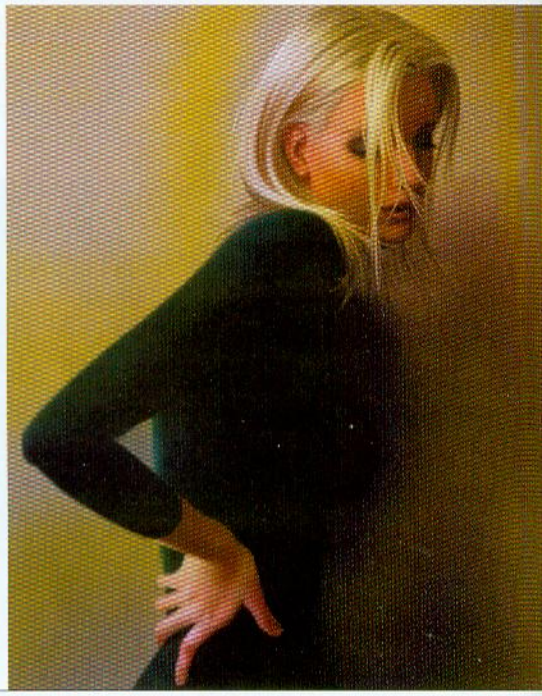

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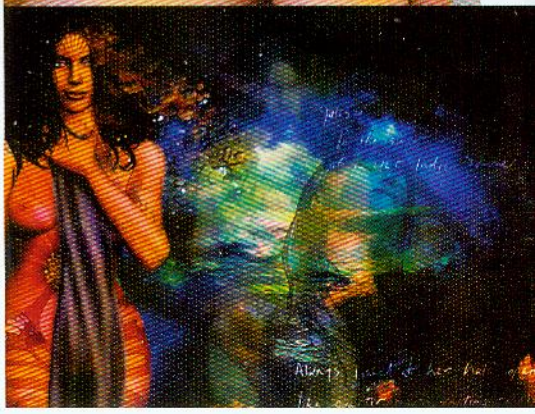
Will's fantasy-themed imagery is a sublime combination of *Poser*, *Photoshop*, and a great deal of talent. "Great images are much more than about tools," he says



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THE PERFECT BODY

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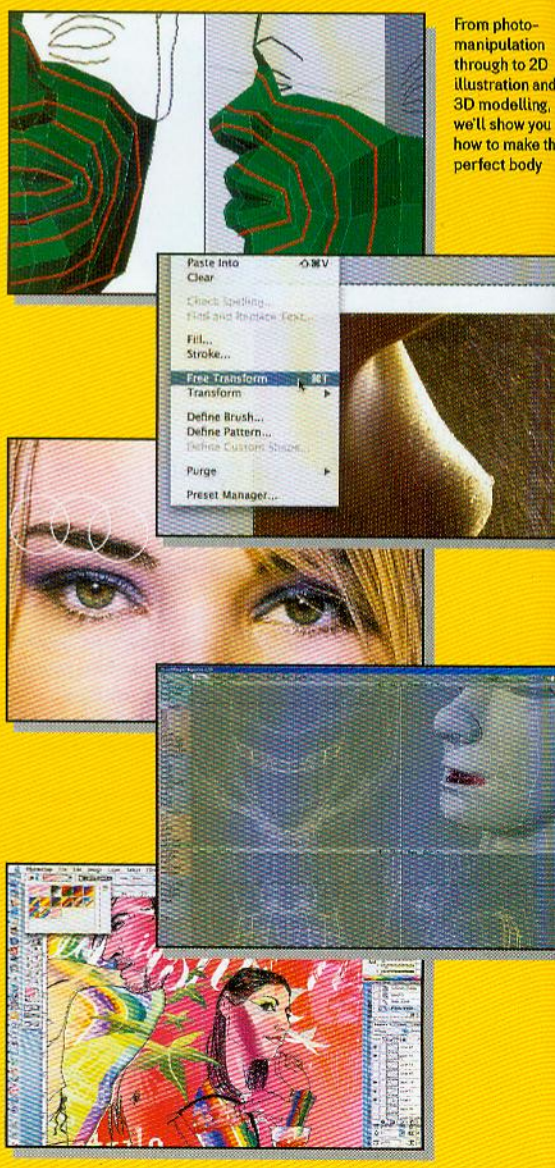
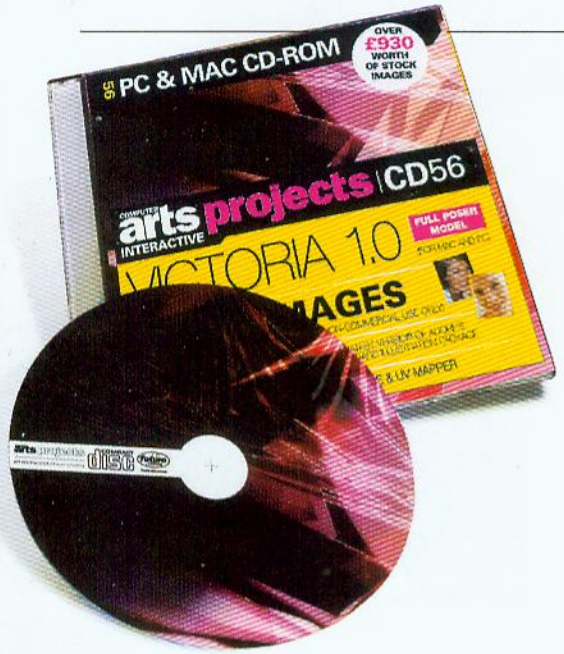


From photo-manipulation through to 2D illustration and 3D modelling, we'll show you how to make the perfect body

COMPUTER arts projects INTERACTIVE

On the CD

Your guide to the free extras given away on this issue's cover disc...



Software

ILLUSTRATOR CS (DEMO)
Mac OSX
Windows 2000/XP

Illustrator CS is Adobe's latest edition of its premier vector art application software. It's part of the new 'Creative Suite' of products, which refers to tighter integration between Adobe's prime products. *Illustrator* is Adobe's oldest product and has grown from strength to strength over the years. This CS version is no exception, offering a number of new features which are likely to tempt existing users to upgrade as well as attract multimedia newcomers.

The first noticeable new feature about *Illustrator CS* is that while the software is still available for both the PC and Macintosh platforms, Adobe has finally cut the apron strings from Apple's OS9 operating system. The software will only run on Apple's OSX and above on the Macintosh and Windows 2000/Windows XP on the PC platform.

The overall performance of *Illustrator CS* is noticeably faster than *Illustrator 10* when opening, copying and pasting, saving, and printing files.

Additionally, the new 3D Effects feature enables creation of custom 3D shapes and type treatments from 2D objects and text. The software even enables you to add lighting, and then wrap artwork around shapes for packaging mock-ups.

Illustrator CS's 'Save As Template' command enables you to reuse designs by saving files as templates which include the art board dimensions, styles, symbols, layers, and so on. There are also more than 200 professionally designed templates and over 100 OpenType fonts in addition to clip art and stock photographs all included free with the full version of *Illustrator CS*.

[w] www.adobe.com

Illustrator CS features the following new additions:

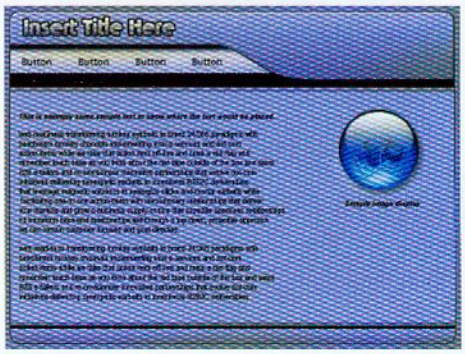
- Advanced typographical controls
- Enhanced Adobe PDF file creation
- Adobe PDF layers support
- Faster performance
- 3D effects
- Expanded print capabilities
- Tighter Microsoft Office integration
- Save As Template command
- Professionally designed content
- Video tour of new features

Templates

INTERFACES
Mac/PC
Photoshop PSD format

From WZ2K, we bring you three interfaces to play with on this month's cover CD. You're free to do what you like with them: you can take them apart and learn from them, use portions of them in other projects, or rebuild them or put them on your Website. Each interface is worth £150.

[w] www.wz2k.co.uk



Photography

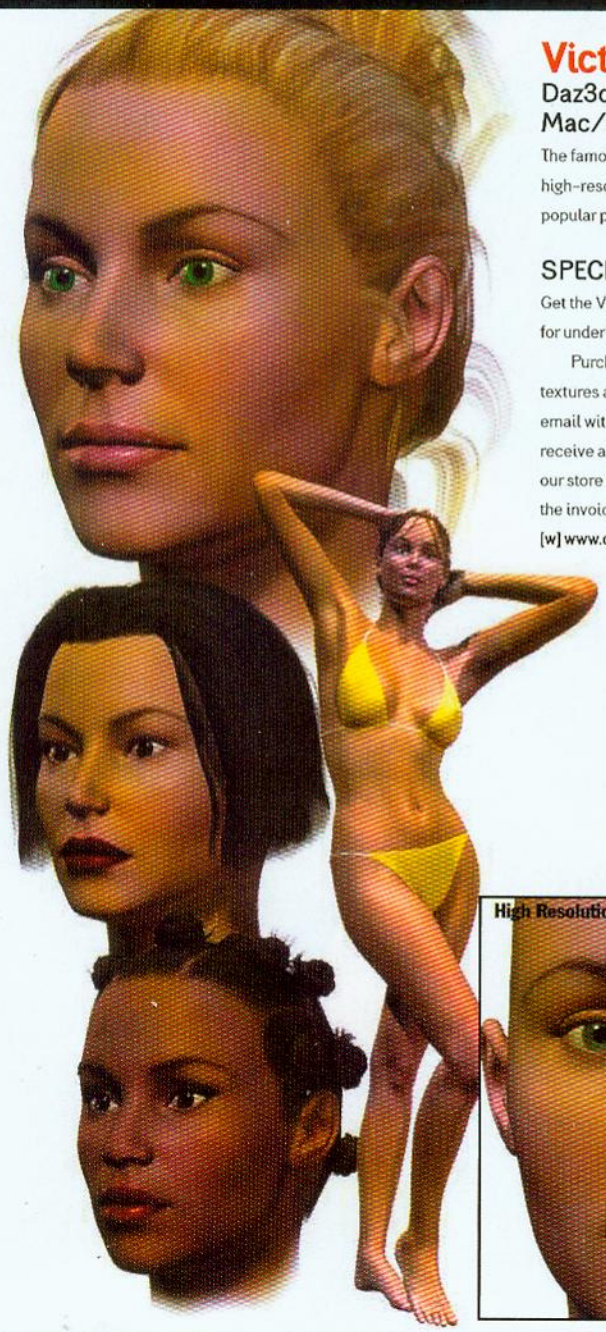
STOCK IMAGES
Mac/PC
JPEG format

We've got five full stock images worth over £930, courtesy of Photolibrary.com. These images are for personal use only and may not be used in any commercial form whatsoever.

Photolibrary.com launched in October 2002 and now has over 230,000 high-resolution images online, which are available for immediate download. Both Rights Protected and Royalty Free images are represented online with collections focusing on various subjects including travel, business, lifestyle, beauty, natural world, illustrations and many more. A free search service is also available.

[w] www.photolibrary.com

FREE MODEL AND SPECIAL UPGRADE!



Victoria 1.0

Daz3d
Mac/PC

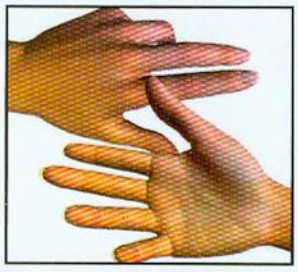
The famous *Poser* model is yours free! A complete, high-resolution model for use in Curious Labs' popular program.

SPECIAL READER OFFER

Get the Victoria 3.0 model and high-res textures for under $55 after rebate.

Purchase Victoria 3.0's high-resolution textures and get $10 back. Simply send Daz an email with the code 'Victoria3Rebate' and you'll receive a voucher valid for any Daz original item in our store (email [e] sales@daz3d.com and include the invoice number from your purchase).

[w] www.daz3d.com



Video Tutorials

'PHOTO-RETOUCHING' VIDEO TUTORIALS
Mac/PC
Quicktime MP4 format

Hatch from PsXtras illustrates how you can retouch your images and remove those annoying extras. Using a number of examples, Hatch cleverly illustrates the processes involved in dealing with such problems.

[w] www.psXtras.com

Also on the disc:

'CREATING WEBSITES PART 2' VIDEO TUTORIAL
Mac/PC
Quicktime MP4 format

This video tutorial is the final part from WZ2k. It demonstrates how to use *Photoshop* and *Dreamweaver* to create a Website.

[w] www.wz2k.co.uk

MAT POSE EDIT
PC only

MPE was created to speed things up with *Poser 4's* popular material poses. MPE can open any character, prop or hair file and do everything *Poser's* material options window can, but it also enables you to edit multiple materials at the same time.

[w] koti.mbnet.fi/~ilaripih/MPEHome/

UV MAPPER
Mac/PC

UVMapper Classic is a full-featured texture-mapping utility program. It enables you to completely remap a Wavefront (obj) model in any way you can imagine. You can also use it simply to generate texture-map templates for models that have already been mapped.

[w] www.uvmapper.com

IN THE MAG
Mac/PC

In the 'In The Mag' folder on the cover CD you'll find all the supporting files that are needed to work along with the tutorials in the magazine.

[w] www.computerarts.co.uk

Turning back the years

Make an older person look younger by reducing wrinkles, polishing teeth, improving hair, and giving them a tan…

Image manipulation is so taken for granted these days that no image-precious celebrity would allow their pictures to be published without substantial retouching. As a result, image retouchers have become superbly capable.

So how do you take the years off an older person? Before you get carried away, always remember to check that the original image is worth working on: is it the right size, does it have good colour data?

If the answer is yes, you can simply throw the *Photoshop* manual at the image, improving each feature that appears to need it. Or you can look at it systematically. View the shape of this image: the original was taken at a slightly awkward angle, so the face appears distorted. In fact, it's the first thing that needs correction here.

Then it's time to assess the details. Most obviously, you need to ease off the wrinkles. And the hair could perhaps be improved, along with the eyelashes. You might also want to improve the teeth and gums. Finally, some adjustments should be made to the exposure and tone: the image is too cold, and colour saturation could be improved too.

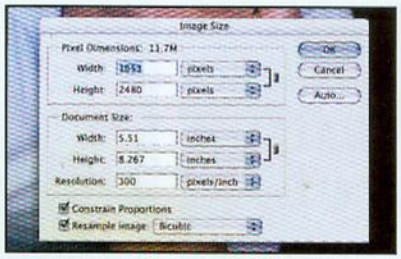
You'll find the before and after images on the cover CD in the Software\Tutorials\In The Mag\3D_Head folder. The original image was provided by Photolibrary.com.

Expertise provided by Tom Ang. Tom is an expert on colour management, digital photography and *Photoshop*. He is Senior Lecturer at the University of Westminster and his books include *Advanced Digital Photography*, *Photoshop for Photography* and the forthcoming *Private Album*. His Website at **[w]** www.tomang.com is due to be launched in March.

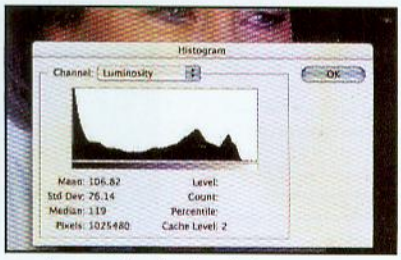
Part 1: Checking the size and histogram

Do some basic checks on the image to make sure you don't waste time on a poor-quality original…

1 When you first open the image, check that it's suitable for the purposes you intend. Image Size is one of the dialog boxes you'll always be opening, so to save time and effort, you should set up an Action to call up the Image Size dialog.



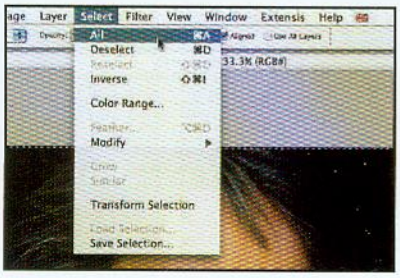
2 The editor wanted the image to be big enough for a half-page in a good-quality magazine: say, four inches wide at a generous 300dpi resolution. In this case, the five-inch-wide picture at 300dpi is ample for the work, giving us some margin as well as room to crop if necessary.



3 You can call up Levels or the Image> Histogram… display. This is the only *Photoshop* panel that simply gives you information. As the histogram is smooth, without breaks or errant peaks, it's clear this is a healthy image with plenty of data to work with.

Part 2: Correcting distortions

An angled camera perspective and short focal length means some correction is needed…



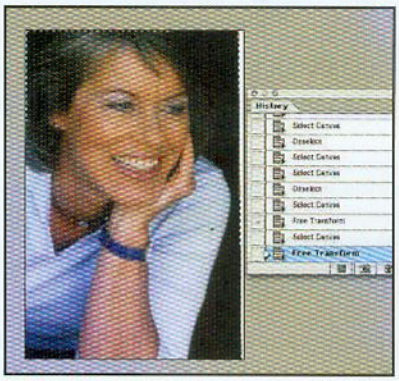
1 The picture was taken from a slightly elevated position and rather close up. As a result, the face looks a little too large for the arms, and the downwards tilt makes the body lean awkwardly. First up, select all using Cmnd+A or Ctrl+A.

2 Once you've made a selection, you can distort it. Call up the Distort tool, which is found in the Edit menu. Unlike the Free Transform tool, Distort enables you to lengthen any side and change the angle of the corners.

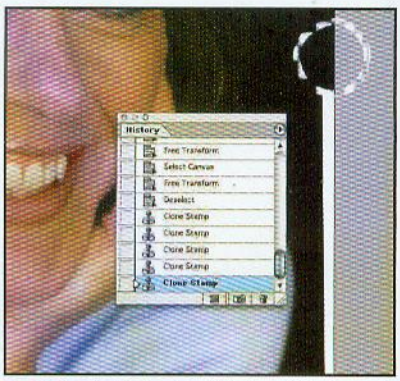
3 Increase the image size at the lower half of the image. Pull the corners out and watch in real-time how the image responds. To make the effect obvious, this is too enthusiastic an enlargement.

Part 2: Correcting distortions continued...

4 A modest increase in enlargement of the lower part of the image improves the proportions a little, but you have more work to do. You can see now that the model's face is foreshortened, so you need to lengthen it a little.



5 Re-apply the Distort tool (if you use this tool often, create an Action which Selects All, then adds the Menu Item: Edit>Transform>Distort). This time, the distortion is to lengthen the image within the canvas.



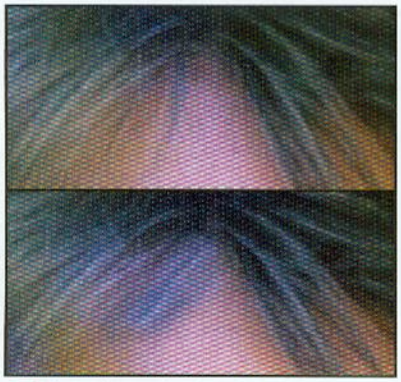
6 I also decided to distort the top of the image to improve the shape of the model's head. This caused the image to fall inside the canvas, so the last step in this part of the tutorial is to clean up the border of the image by cloning.

Part 3: Tidying hair and eyelashes

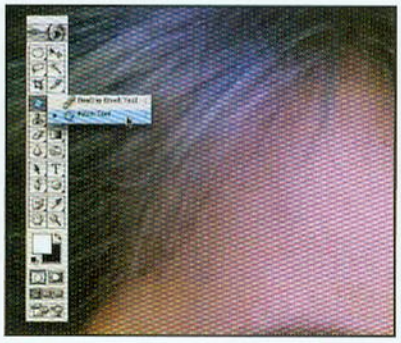
Improving hair is always a tricky job and if it's not strictly necessary, it's best avoided...

Smart cloning

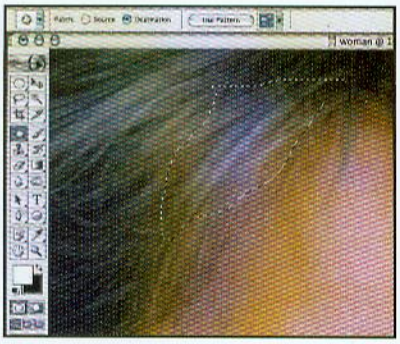
The cloning tools in *Photoshop* are very basic compared to the sophisticated tools offered in Corel *Painter*. From versions 5 and later, *Painter*'s cloning enables you to rotate, enlarge, reduce, reflect or flip over and produce wild distortions. No-one can call themselves a Cloning Maestro without command of *Painter*.



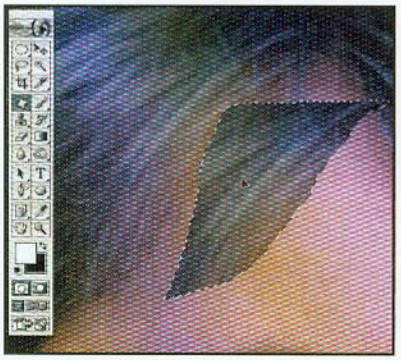
1 The trick is to select the right tool. Here, a comparison of before and after shows that the Clone Stamp tool, even set with a soft brush and at an opacity of 70 per cent, gives too clumsy a result.



2 The Patch tool is good for these jobs. It's just a shame that you can't rotate the Patch selection before applying it. Because of this (and if you don't have Corel *Painter*), you have to be clever and use multiple applications of the Patch tool. First, ensure you have the radio button Destination selected.

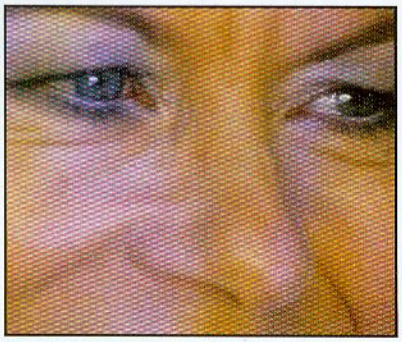


3 Now make the selection. Carefully choose a bit of hair and ensure it'll match with the hairs at the destination. Also draw the selection shape with care. If it doesn't look good, just retrace your steps. There's no shame in needing a few attempts to get the results right.



4 When you move the selection, it won't look promising. Here, you can see it's actually just a copy of the pixels you selected. But the Patch algorithm blends the receiving pixels with the active selection and usually works first time.

5 After a couple of applications with the Patch tool, you should have successfully blended some hair onto the formerly empty area. I used the Clone Stamp tool to disguise the repetition of the clump of hair, which helps with the deception.



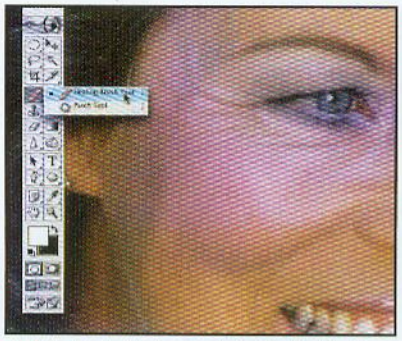
6 The photographer has focused on the far eye of the model, rendering the near eye less sharp and consequently the eye-lashes unsharp. Clone some eyelashes (those pointing in the right direction) and use a little unsharp mask limited to the eye to improve its appearance.

Part 4: Smoothing out the wrinkles

Reduce, but do not eliminate, wrinkles – a face that's too smooth looks like a plastic doll...

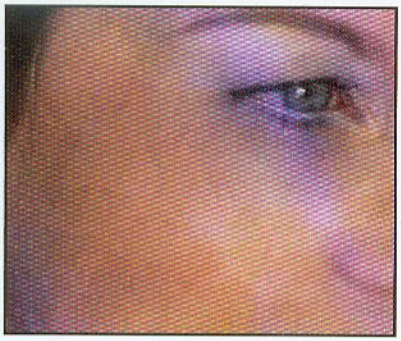
Retouching secrets

All photographers know that the secret of retouching is to only do what's needed. To remove a speck on a scan or print, it's often enough simply to make the white spotless white or the black spotless black – it doesn't have to match the surrounding pixels exactly. The same goes for wrinkles, spots on faces and so on: reduce, but don't eliminate.

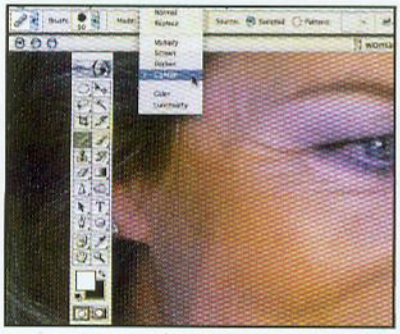


1 The tool of choice here is the Healing Brush, which was designed specifically to deal with wrinkles. It does the job by copying from a source area, but before applying it to the destination, it samples from around the area and jumbles the data before applying the blend.

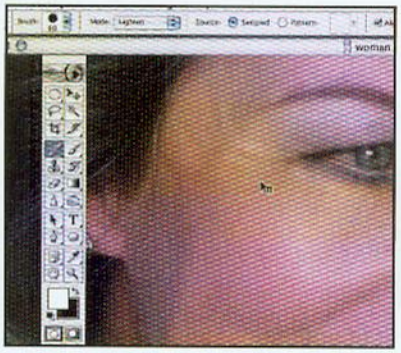
2 Here we see it in action, applied over far too large an area, just to show that it's sampling aligned to the original source position. This doesn't look promising, but a few seconds of computing yields a surprisingly useable result.



3 This is the result of over-enthusiastic application of the Healing Brush tool: the patient is over-healed and begins to look like a cloned being. However, you may need to make corrections to this extent if working for fashion or make-up pictures for poster-sized outputs.



4 Looking carefully at the image, you can see that the wrinkles are defined by the darker valleys in the skin. An often-forgotten option in the Healing Brush tool is the choice of blending modes. I like to use the Lighten mode because it reduces wrinkles without eliminating them completely.



5 By brushing with the Healing Brush tool set to Lighten, the wrinkles by the model's eyes are greatly softened yet sufficiently present to contribute to character and charm. Do the same to the other eye.

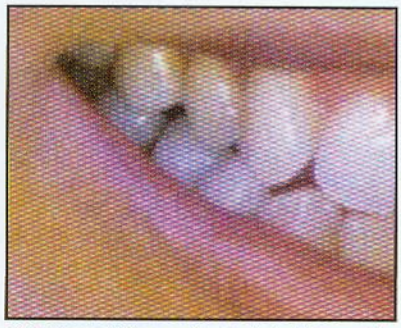
6 When the Healing Tool is set to Lighten you can't, unfortunately, set its strength. So you need to choose areas with differing brightness level to adjust the effect. Here we've left shadows around the mouth to hint at the shapely face, but we've removed the deepest wrinkles.

Part 5: Cleaning the teeth

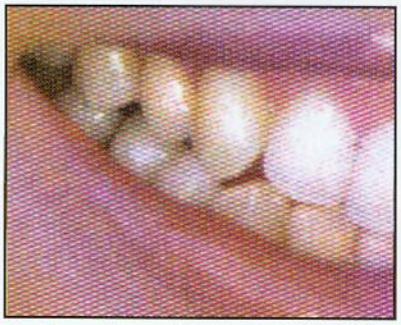
Bright, sparkling teeth are a sign of health, so sit the model in the dentist's chair...

Saturation intentions

Working with skin-tones calls for delicate judgements at all times and especially with colour reproduction. The least forgivable error is over-saturated colours; under-saturated colours can be acceptable, particularly with high-key fashion or any models working in soft product lighting. As people looking at the final image won't know what the model's original skin tone looks like, there's some room for manoeuvre when setting colour balance.



1 The model has excellent teeth, but they could do with just a bit more sparkle. The key tool is the Dodge tool, of course. Make sure it's set to Highlights because you don't want gleaming white teeth, just sparkling ones – so it's the highlights that need a lift.

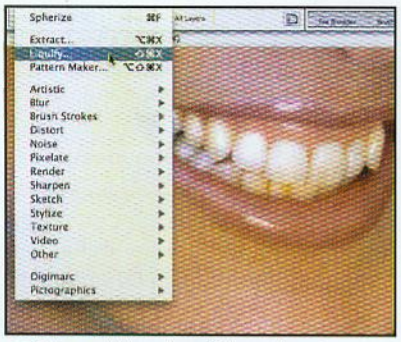


2 As ever, the secret is not to overdo the effect; I worked at just 10 per cent pressure, and dabbed lightly. Too little is almost always preferable to too much correction. Another way to look at it is to remember that the human eye doesn't tolerate large areas of pure white.

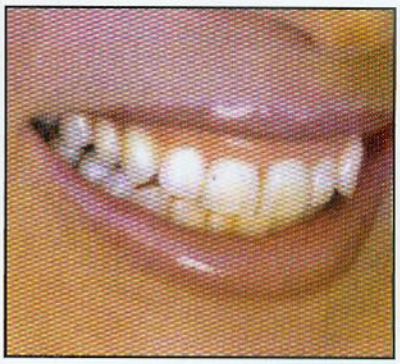
3 To complete the dental work, you can slightly increase the amount of gum covering the top of the teeth by using the Clone Stamp tool. Set it to Darken because you're applying flesh to mainly pale areas. This change can subtly help make the mouth look younger and healthier.

Part 6: Reshaping the mouth

The shape of a model's mouth is often the most difficult feature to control during a photoshoot...



1 The model has a beautiful mouth and a gorgeous smile, but her pose – which puts the weight of her face on her hands – has slightly distorted her natural beauty. In addition, the camera angle reduces the fullness of the upper lip. We reach for the Liquify Filter.



2 In the Liquify Filter, you can push pixels directly or use the Bloat (to swell up) or Pucker (to pinch in) pixels. Use a dabbing action, working with a brush size that's just larger than the area which needs alteration. And work slowly.

3 With a little attention, the mouth is now more regular in shape – without the pushing out caused by the pose – and with a slightly fuller top lip. Beware of the temptation to give your model much fuller lips – the line between lovely and botoxed embarrassments is very fine.

Part 7: Faking a tan

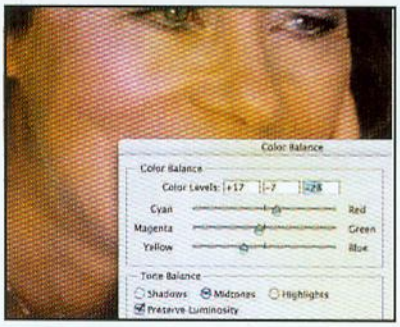
The original image is trendily cool in tone, with a hint of green. But it could be more flattering...

Warm-blooded

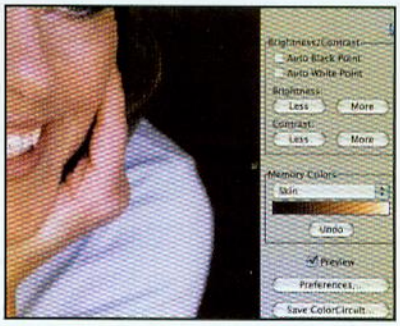
Instinctively, we're attracted to warmth – and that applies to colour balance as well as to room heating. If your image is not neutral or warm, then it's usually best to ensure that it's clearly intended to be cool – an emphasis on coldness seldom looks right whereas an error in the direction of warmth is almost always acceptable, especially with skin-tones.

Graphics tablet

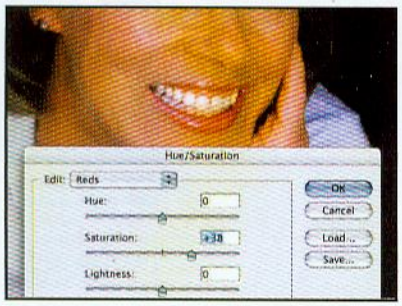
If you plan to do lots of careful retouching or body work, then do yourself a favour if you're using a mouse: put it to pasture. Get a graphics tablet instead. The best size for most uses is A5 (6x8 inches). A6 is too small for serious work and A4 takes up most of the desk.



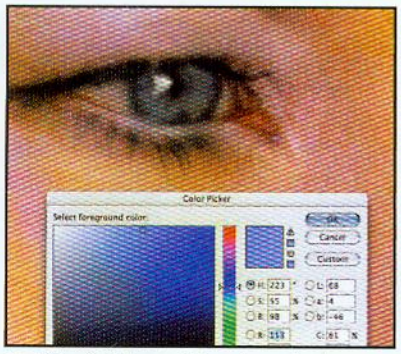
1 There are many ways of introducing warmth to the image. The most obvious is the Colour Balance control. Here, we've chosen to work on Midtones, increasing red and yellow to give a tanned effect. At the same time, we reduced green because there was a slight cast from the scan.



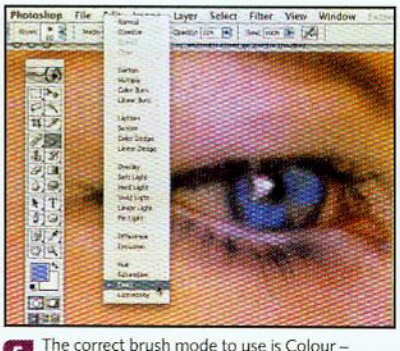
2 Alternatively, you can use one of many plug-in effects. One of my favourites is i-Correct Professional, which provides the simplest possible, no-nonsense correction interface for images. By choosing to key the image to a skin-tone as here, a pre-defined skin-tone is mapped to the image.



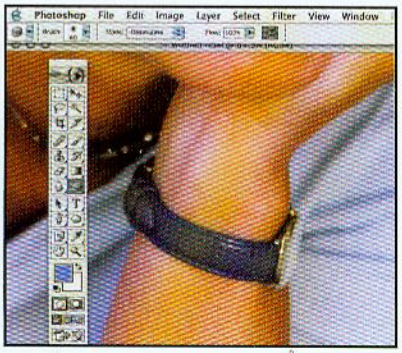
3 As a final touch, boost the colour saturation somewhat. Don't, however, boost all the colours, because you don't want the watchstrap to become more prominent. So choose the red strap and selectively raise saturation for reds only. The result is perhaps best suited for a poster, being a little too lively for a magazine page.



4 Now that the model has a tanned look, we notice that her eyes are too grey, making them look a little lifeless on this occasion. To give her blue eyes, call up Colour Picker and choose a light blue for the brush.



5 The correct brush mode to use is Colour – this colourises the underlying pixels without changing their lightness values. We also work at a very light pressure so as not to over-exaggerate the effect. Don't forget to do both eyes, the colour of the far one being a little less intense.



6 The final touch is to reduce the colour of the watchstrap, which competes with the eyes. Call up the Sponge tool, set it to desaturate and paint away. The resulting colour was a little too dark, so we used the Dodge tool to lighten it. **CHIP**

SECTION **ONE:** PROJECT 2

Fast facial retouching

We reveal quick ways to improve digital photos in *Photoshop*...

Top image manipulators can spend days preparing images for publication, but if you've only got a matter of hours to make improvements, you'll need to become adept at quick touch-ups. In this project, we bring you some fast retouching tips for livening up your images and making them more appropriate for specific briefs.

In Part 1, the model was shot for a magazine cover. We needed to make her more obviously blonde, adjust her eye colour to fit with the other colours on the cover and brighten up her lips. Parts 2, 3 and 4 demonstrate how to apply eye make-up, revitalise tired eyes and remove stray hairs. These small adjustments may be all you need to make your photographs stand out.

This photographic image can be found on the cover CD. Navigate through the following folders: Software\ Tutorials \In The Mag\ Face retouch.

Part 1: Quick colour enhancements

You can change the colour of hair, eyes and lips in a few easy steps...

Colour curves, masks and paths

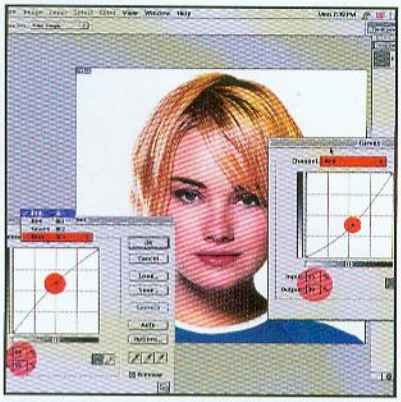
You can paint over a model's hair and apply a colour curve to give her a new look. With the clever use of a Quick mask you can change the colour of the eyes, too. And by drawing a path around the mouth it's a simple step to play with the colour.

Quick cutting

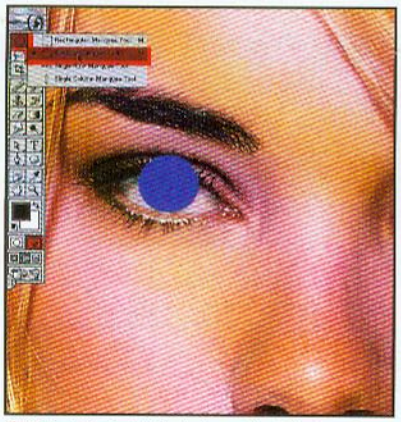
Practice with the Pen tool – much of the time it's quicker to cut out by hand and then smudge a mask than it is to use the Extract or Colour Range tools.

1 Double-click the Quick Mask icon and set it to the selected area at 100 per cent. Choose Quick Mask [Q], a black brush [D] and start to paint over the hair with the brush. Use a white brush to make a hole in the mask on the forehead (see the red circle above).

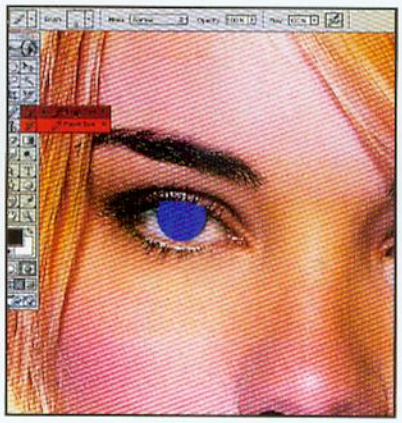
2 Come out of Quick Mask [Q] and you'll notice that the mask has become a selection. Choose Window>Layers and then select Curves from the bottom of the Layers palette. A mask will be created automatically from the selection. Select Channel>RGB>Red.



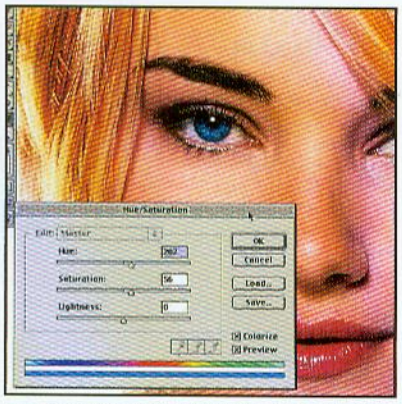
3 With only the red channel selected, click the middle of the curve and a point will appear. Type 55 into the Input and 39 into the Output field. Click on Channel>Red and change it to blue. Click again and enter Input: 50, Output: 59. Click OK.



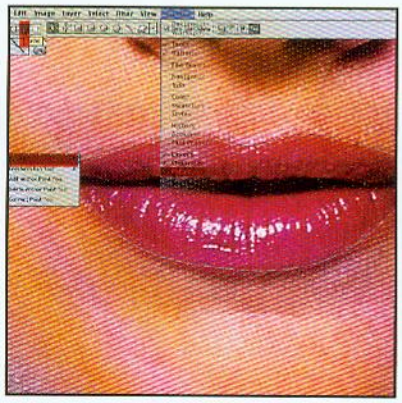
4 Go into Quick Mask (press the Q key) and select one eye using the Elliptical Marquee tool. Drag to fit over the eyeball and hit [D] to default the swatch to black and white.



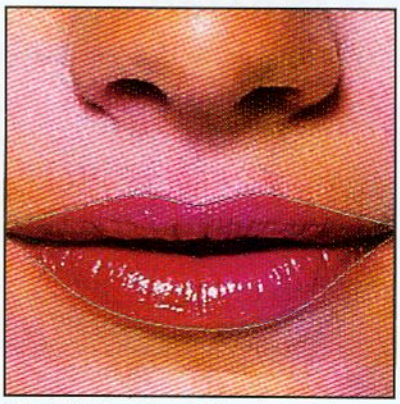
5 Use Alt-Delete to fill. Repeat with the other eye, then deselect the selection using Cmd/Ctrl-D. Remove any excess mask using the white brush. Press [X] to flip the brush from black to white.



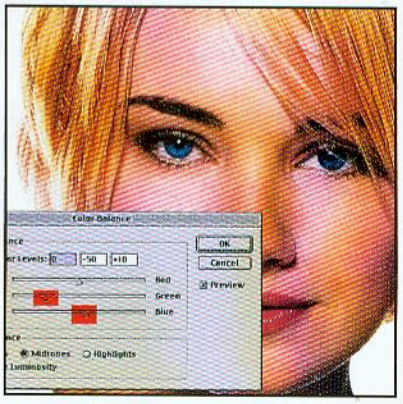
6 Come out of Quick Mask and, from the Layers palette, select Hue/Saturation. Click Colourise and set Hue to 202 and Saturation to 56 per cent. You may want to experiment with other eye colours, too.



7 Check the path and note the shape layer is active in the top toolbar. Go to Window, and select Paths. Select the Path tool and draw a path around the mouth. Check the path is active in the top toolbar.



8 Click in the path and click on the first point made to make one sealed shape. From the Paths palette (with the path still selected), click the 'Load path as selection' icon from the bottom of the palette.



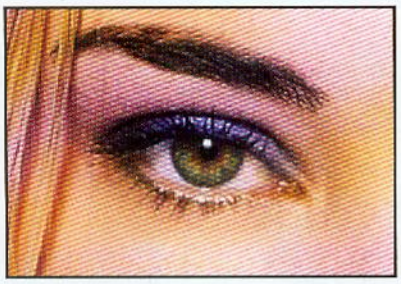
9 From the Layers palette, choose Colour Balance. Drag the Magenta/Green slider down to -50 and the Yellow/Blue slider to +10 and press OK. Try playing around with your own settings to colour this image further.

Part 2: Applying eye make-up

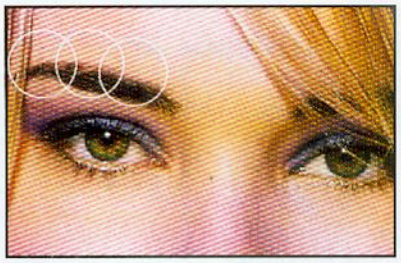
Become a virtual make-up artist for a day and glam-up the model's eye...

The Context-sensitive option

Check out the context-sensitive option on the Mac by clicking on the screen with Control held down. PC users will probably be aware of this already, as the PC's context-sensitive menus are much more widely-used. Go through every tool to see all the shortcuts that are available, and pay special attention to paths and selections.



1 First create a new layer in *Photoshop*, and change the Blending Mode to Colour. Select a brush size of 17, and double-click the swatch to change the colour. Type 100 into Cyan, 50 into Magenta and 0 into Yellow and Black. Start to paint onto the new layer around the eyelids.



2 Double-click the swatch, and change the magenta to 90 per cent. Create a new layer and change the Blending Mode to Soft Light. Paint this in quite roughly, then choose the Eraser tool with a brush size of 100 and a hardness of 0. Remove some of the colour using the edge of the Eraser tool to give a soft gradient.

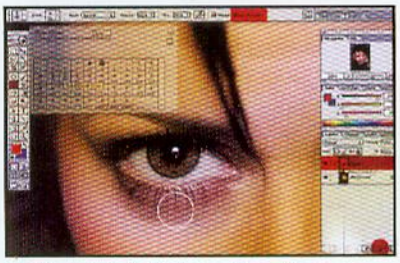
3 Click on the Eyedropper tool and select Point Sample, then take a sample from one of the bottom eyelashes. Create a new layer and change the Blending Mode to Multiply. This will double-up on the darkening effect. Paint with a brush of 17 pixels and remove the overspill with an Eraser brush of 12 pixels.

Part 3: Revitalising tired eyes

If your model's looking slightly worse for wear after a hard night out, you can soothe her tired eyes...

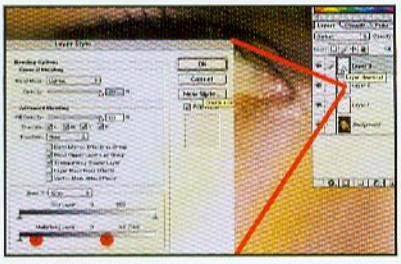
Clone Stamp tool

Cloning is an acquired art, and everyone uses a slightly different technique. Some people choose to dab areas to avoid patterns; other people choose longer strokes — it depends on the area to be reworked. Where you take the sample, where you spray, and the direction in which you spray with the Clone Stamp tool are important: a professional pre-press operator will make even the most difficult areas look easy to achieve. The key is experimentation...



1 Zoom into the tired eye. Choose the Clone Stamp tool and select Use all Layers from the top bar. Create a new layer. With this layer active, choose the Clone Stamp tool, and select a brush size of 35 pixels. Take a sample using the Alt key, click from under the eye, and start to clone onto the darker part of the eye.

2 Create a new layer as before, but this time set the Blending Mode to Lighten. Set a brush size to 21 pixels; click a sample point to the right; and click to the left a small distance, following the contour of the eye. Start again a little higher up, and do the same again until all the dark pits have been removed.



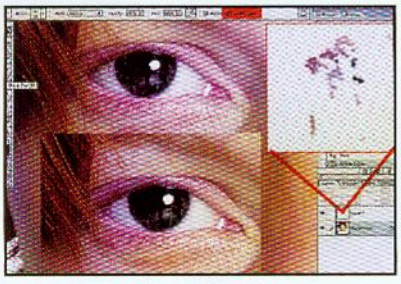
3 Double-click the layer, and go to the Advanced Blending section. Within the Underlying option, choose the white triangle. Alt click-and-drag the right-hand side of it (this will split the triangle in two), and drag it to 32/162. Make another layer, using the Darken Blending Mode, and clone over the lid again as before.

Part 4: Tidying up a portrait

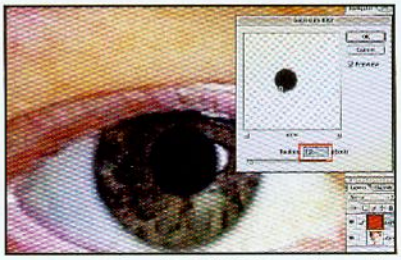
Remove distracting stray hairs and make some colour changes to the eye...

Tips for Quickmask

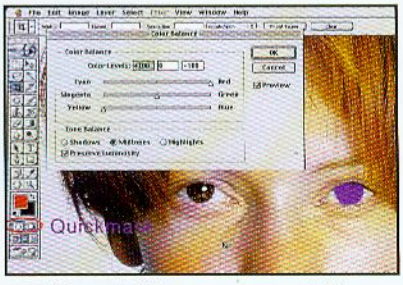
Go to the Floating Tools palette and double-click on the Quickmask icon beneath the Foreground Background picker to see the options for this tool. You can change the opacity of the mask. If you've painted the area of the eye with a soft brush and come out of Quickmask, the area outside the eye will be the selected area. If you go to the Selected Area option, then only the eye will be the selected. Finally, you can turn Quickmask on and off by clicking the left or right icon.



1 Create a new layer and use this as your active layer. Choose the Clone Stamp tool, click on Use All Layers from the top bar, pick a brush of 13 pixels and start cloning out the hairs (keep your finger on the Alt key so that you can resample quickly as you click around the eye area).



2 Go to Quickmask [Q], hit [D] to set the swatch to its default and [B] for the brush. Choose a brush size of about 27 pixels and paint onto the rims. Come out of Quickmask using [Q]. From the Layers palette, choose Colour Balance. Pull the Magenta/Green slider to +17 and the Yellow/Blue slider to -38. Press OK.



3 If the mask is the wrong way around, hit Cmd/Ctrl-D and Cmd/Ctrl-I to invert the layer. Finally, use the Quickmask technique to create a mask for the eyes and, in the Colour Balance dialog, choose Red: +100 and Yellow: –100, in order to give the eyes a little more colour.

Change your body shape

Lose pounds, improve muscle tone and eliminate skin blemishes in a matter of hours with our *Photoshop* body make-over…

The ability to make changes in shape is an essential part of the image-manipulation armoury. However, in the early days of image manipulation, there wasn't a lot that could be done to improve body shapes. The image processing needed for distorting shapes calls for awesome computing power in addition to clever programming. While computers now have all the power we need, the software still has some way to go to give us easy-to-use tools.

One problem is that changing body shape is not a simple, one-click process. It's a technique that'll be familiar to typographers: the overall look of 'rightness' of type depends on the balance between the size and weight of all the details. It's the same with the human body: you can't turn a large, corpulent body into a slim one simply by squeezing the entire image – you have to leave some parts the same size, while others can be reduced much more.

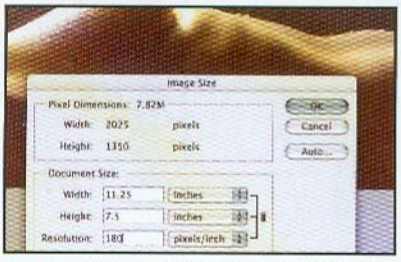
In this tutorial, we work with only one section of a body to create a torso that is slimmer, with younger-looking breasts and unblemished skin. Working with a full-length body involves exactly the same principles.

The original image needed for this tutorial can be found on the cover CD (along with the finished file). Navigate your way through these folders: Software \ Tutorials \ In The Mag \ Body reshape.

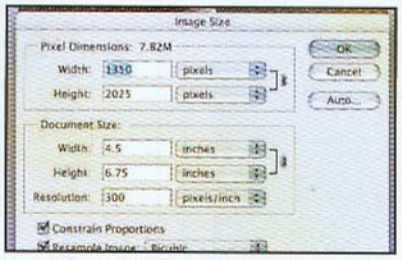
Expertise provided by Tom Ang. Tom is a photographer, book author and all-round digital guru. He is Senior Lecturer at the University of Westminster and his books include *Advanced Digital Photography*, *Digital Photographer's Handbook*, and *Photoshop for Photography*. Tom also gives lectures as far afield as Hungary, Kyrgyzstan and Malaysia. His latest book, *Private Album*, is due out in April, and is a manual of erotic photography. His Website launches in March at [w] www.tomang.com

Part 1: Image health checks

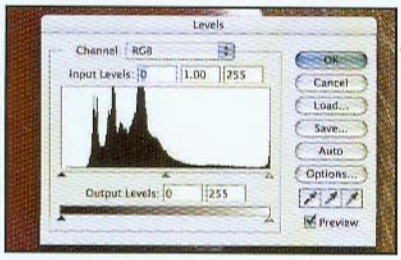
Checking Image Size and Levels are essential first steps to any image manipulation …



1 This image was captured on a digital camera with a default output of 180dpi resolution. The image is on its side because the camera was turned to portrait orientation for the shot: if you take a lot of these types of images, choose a camera which automatically turns the image on download.



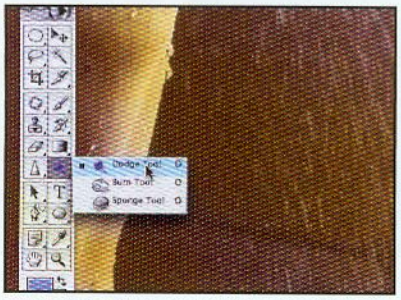
2 When preparing for print, you could leave the settings as they are – which is on the limit of what is acceptable for a 133lpi screen – but we suggest you change the resolution to 300dpi because that's what most production people expect. Rotate the picture, using a pre-defined Action.



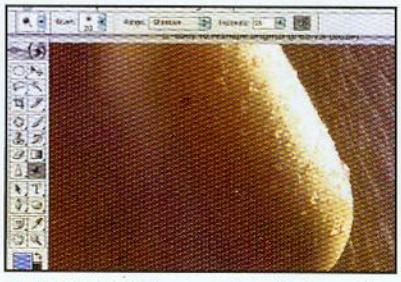
3 The other key check is Levels (or Histogram). A look at this shows that the image is slightly over-exposed (the Histogram is clumped at the right-hand end). This is good enough to work with, but, as you could be making many changes to the image, leave Levels adjustments till later.

Part 2: Removing irritations

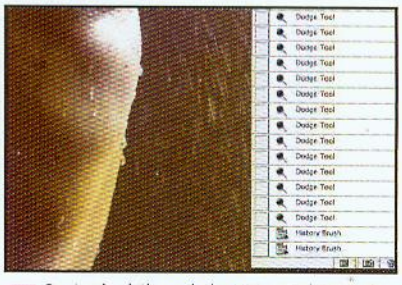
Clear the image of anything that's not needed before you get stuck into the serious stuff…



1 The Art Director of this project didn't like the strong line of the tiles in the lower part of the image, so let's just get rid of it. The obvious tool to use is the Dodge tool.



2 Set the Dodge tool to work on Shadows, with very, very light pressure. When we had removed it completely, the Art Director decided the line actually needed to be there – it was just a little too strong.



3 So step back through the History Palette and reconstruct some of the line using the History Brush applied at 50 per cent. This leaves the line on the wall so that it helps with the composition but it's not so strong that it's a distraction.

Part 3: Tummy tuck and breast lift

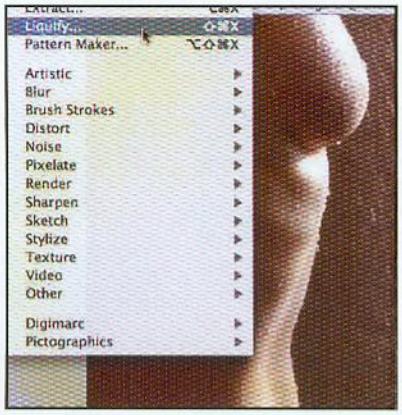
Body re-shaping has never been easier. It's painless and reversible, unlike the real thing...

Sharp margins

When manipulating images, you usually need to select an area with enough feathering to define a region cleanly but without so much feather that it blurs detail more than necessary. When working with distortion effects, however, you generally need to set feathering to zero. If you don't, the undistorted edges become evident and can only be hidden by blending with a duplicate layer.

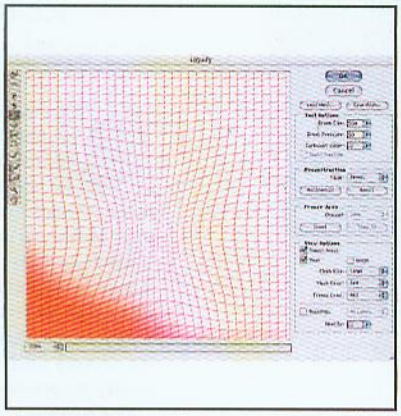
Nudge, nudge, wink, wink

The arrow keys can be used to nudge selections as well as the points on a curve, and they can even change values in dialog boxes. Using the arrow keys causes less strain on the over-worked right hand, and tapping is easier on the wrist than precise movements of the mouse.

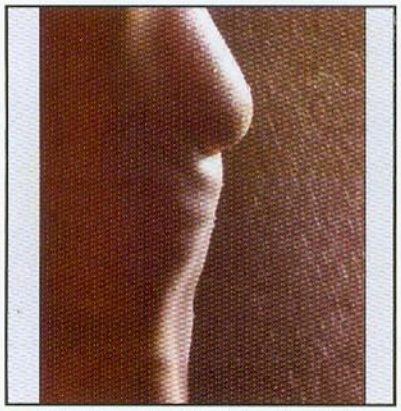


1 The first task is to tuck in the stomach. Although the shape is entirely healthy and normal, we want a firmer line. Bearing in mind its shape, the easiest tool to use is Liquify, found under the Filters menu.

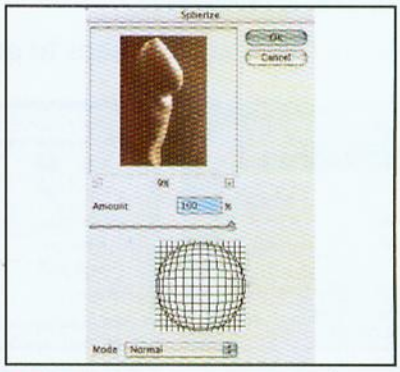
2 If you have a very large image, you might want to make a selection first so that the filter opens more quickly and works more easily. When the image displays in the Liquify filter, it will show the areas outside the selection as 'frozen' – that is, you can't distort them.



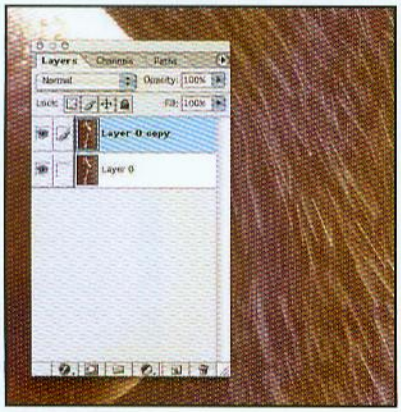
3 Select the Pinch tool from the palette in the Liquify filter and apply to the tummy. This screenshot shows how the mesh – originally made of squares – has to be distorted or pinched in to produce the effect you want.



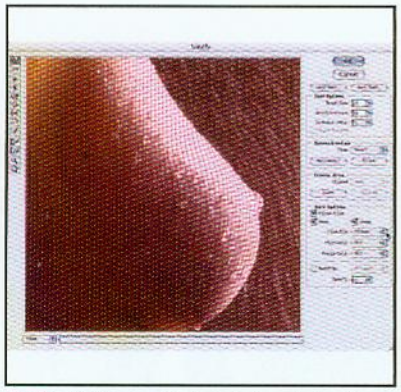
4 This is the result of the Pinch tool applied to the tummy. Notice that we've left a slight bulge. When we tried taking it all the way in, the model looked as if she was holding her breath and pulling in her stomach. It was too tense.



5 Now it's time to turn your attention to the breast. As lovely as it is, we're going to lift it and make it a little fuller. It's tempting to turn to the Spherize filter in the Distort collection for this job, but its symmetrical effects and its trickiness to control make it unsuitable. The Liquify filter is again your best bet.

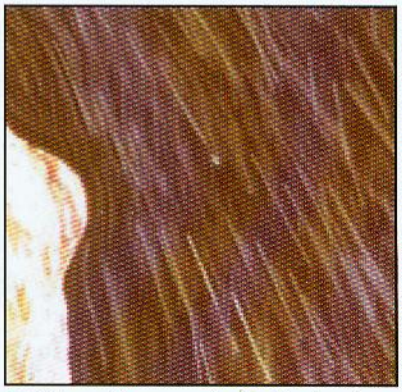


6 When you distort the breast, this will also distort the flow of water-droplets around it. With this in mind, turn the Background into a Layer and duplicate the layer and select it for the next step.



7 Guided by good taste and a knowledge of surface anatomy, we use a combination of the Pucker, Bloat and Warp tools to shape the breast. It's worth applying small effects, then reviewing the overall image, rather than applying large changes in one go.

8 We now have the problem we'd anticipated: you can see in this close-up that the streaks of water appear to flow around the breast, having been distorted along with it. We'll clone from the lower layer – which contains the undistorted water drops – to the new layer.



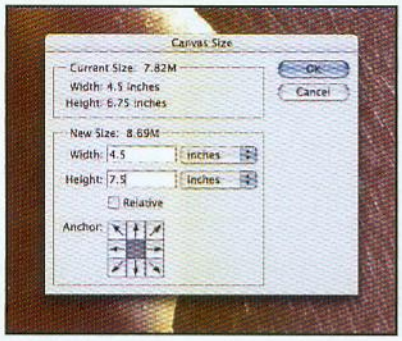
9 The result is a more natural-looking flow of water past the model. In this detail, you can see some streaks are repeated – giving away the cloning. A little more work, simply cloning from elsewhere in the image, will make a more realistic pattern. Once done, the lower layer can be deleted.

Part 4: Body lean

It's easy to change the body shape and proportions, but it's just as easy to do it at the wrong time...

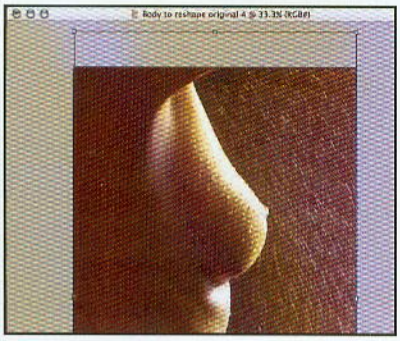
Slowly does it

Changing the shape of a body is a very subtle process. We're all aware that our eyes adapt to colour casts, but they also adapt to body shapes. It's easy to overdo a change in shape. So make small changes, review them, then make more changes. Cumulative small changes can often preserve details better than one big change.

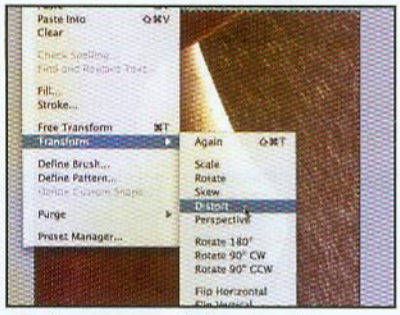


1 If you need large-scale distortions, it's smart to do this before you clean up the skin with cloning or other methods. Distortions can show up artefacts from cloning. We want the model to look taller and leaner, but we don't want to lose any of the image. So we need a larger canvas.

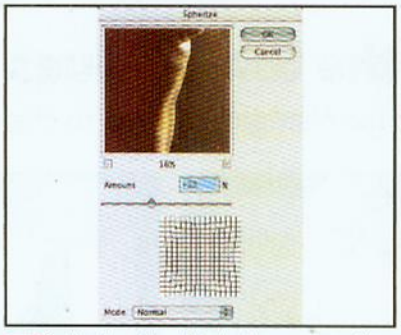
2 You can create a larger canvas that gives you room top and bottom to stretch the model without losing any part of the image. Give yourself plenty of room because you can always crop off any spare canvas you don't need.



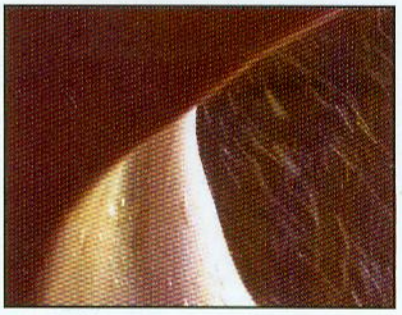
3 A simple stretch of the body from top and bottom doesn't seem to be convincing, which shows that changing body shape is not a simple matter of pulling pixels about. It looks as if the upper part of the body needs to be distorted a little, so select the Distort tool.



4 A common error is to forget to make a selection before looking for the Distort or Transform tools. The software needs to know how much of the image you want to work on (yet other filters will work on the whole image by default). If you use Distort a lot, create an Action which selects all, then calls up the menu item.



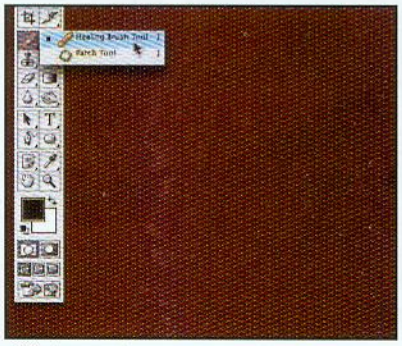
5 To slim down the whole body, you can use the Spherize filter, but first select the area you want to work on. By default, it takes in the whole image. Here, we selected the left half of the image, then applied a negative value which has subtly squeezed in the body.



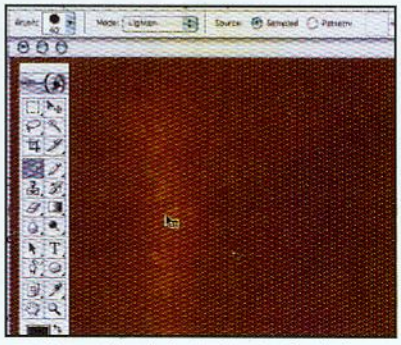
6 As a final touch, tuck in the chest area just under the arm so the chest doesn't appear too strong in comparison to the now slimmed-down figure. An adjustment in one part of the body usually calls for a compensating adjustment elsewhere: failure to make these changes can show you up.

Part 5: Removing blemishes

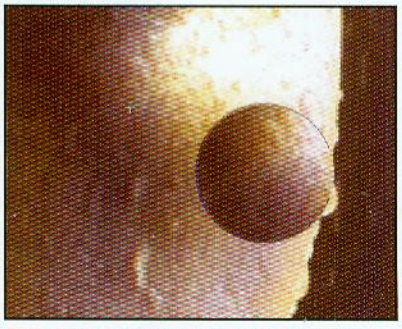
It's natural for models to have the odd mole or scar, but you might want to remove them...



1 The image has two main problem areas. First, the model didn't remove tight clothing before the photoshoot, so there are pressure-marks on the skin. In addition, she has a number of moles. You can remove these with the Healing Brush.



2 You could apply the Healing Brush with the blend set to Normal, but you'd lose the catchlights on the model's back. Instead, set the blend to Lighten, which ensures that while the moles are easily removed, the catchlights are kept.

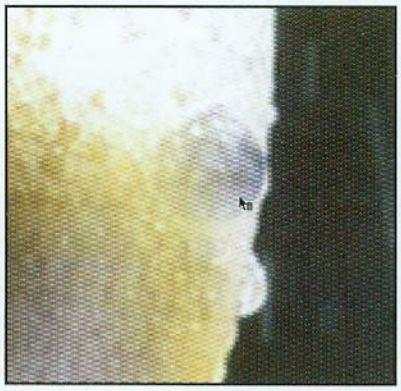


3 The Healing Brush is such a delight to use that it's easy to be careless. It can easily cloud detail if you pick an inappropriate area as the source. And because it samples from around the brush – not just within the brush's confines – it can produce messy artefacts.

Part 5: Removing blemishes continued...

Save, save, save

We shouldn't really need to say it, but we will anyway: keep saving your work. Don't forget that histories, undos and snapshots are lost when the application crashes. While crashes are unusual these days, they will catch you out – especially when you're working on that huge file in the early hours of the morning for a presentation that day.



4 This shot shows the result of allowing the last blend to take effect: it's too dark because it has sampled from the area beyond the body, and it smudges details because the edge of the body should not have been taken into account. A smaller brush should have been set.

5 To help smooth out the skin, you need to soften the details without losing the crispness of the water droplets in the process. Experiment with the Magic Wand tool to select the skin while leaving the water: in this image, a tolerance of 22 does the trick.

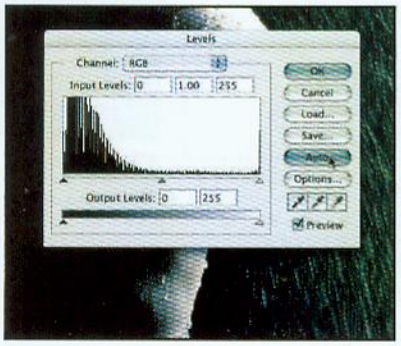
6 Finally, apply a Blur filter to the selected area. Any of the blurring filters will do: Gaussian Blur gives you the greatest control whereas Smart Blur can be used if you want to avoid selecting the skin by hand.

Part 6: Finessing the tonal values

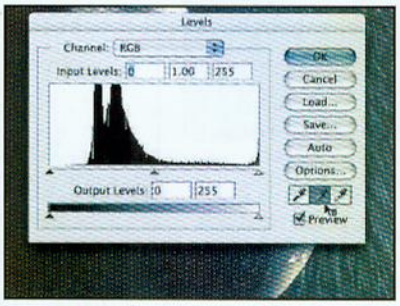
Once you've completed the shape changes, it's time to change the tones...

Taking screenshots

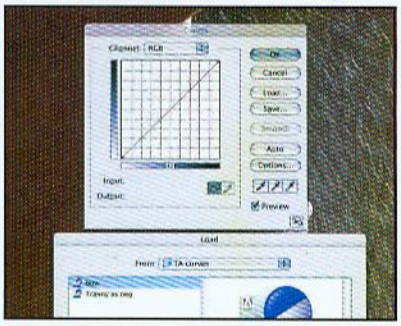
Constantly saving big files to keep track of changes can take a long time and slow you down. An alternative is to take screenshots of the work and screen settings as you progress: it will form notes to remind you of what you did. Screen-grab software numbers shots consecutively, so you don't even need to name the files. And they'll be very small files.



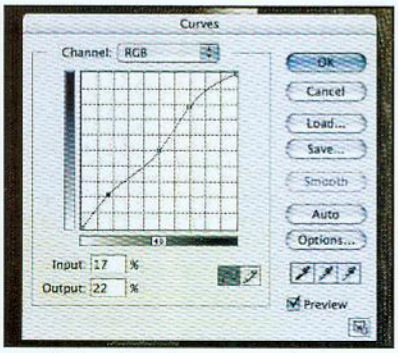
1 How you approach the tonal changes is down to personal tastes, as a touch of Auto Levels reveals. The algorithm yields an image that is much too dark and too contrasty. The colour balance also shifts towards an unpleasant green.



2 Suppose we use the Set Gray Point (mid-tone) dropper from the Levels dialog and apply it on the only nearly neutral patches in the image – the tiles behind the model. The result is plainly well balanced, but quite inappropriate. These tests confirm that we have to use judgement rather than measurement to get the right results.

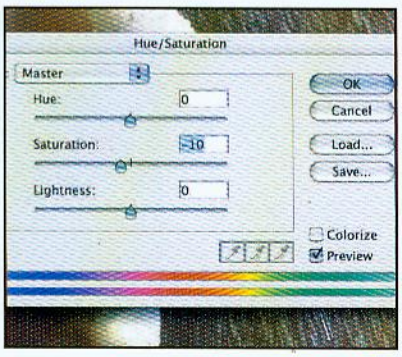


3 One of the quickest ways to give any image a bit of punch (or to be non-technical, to linearise the characteristic curve) is to apply a bow-shaped curve. Call up Curves and draw the bow shape directly. If you use the shape often, create an Action that loads it when you need it.



4 This bow-shaped curve increases the contrast, which enhances the detail in the shadows and highlights while slightly increasing density both in the darker tones and lighter tones. This curve adjustment helps to enhance the mid-tones.

5 The tonal changes have thrown up a little more retouching that needs to be done, as well as a red colour cast that's too strong. Don't remove it entirely – the strongest red is in the shadows, so use the Colour Balance command set to Shadows.



6 One side-effect of applying the bow-shaped curve is that the colours were boosted. A quick check in preview (Cmd/Ctrl + Y) confirms that the colours are too strong. So we tone them down with the Hue/Saturation command. GO P

Taking perfect portrait pictures

The secret to a great face or body image is a great original photograph. Here are some expert tips on getting your shots right first time...

Pictures of people are a staple of the design community, and play a part in many projects – from simple head shots to more sophisticated lifestyle imagery. While some are bought in as stock, others are specific images that need to be shot, and many creatives regularly find themselves either commissioning a professional or – when the budget's tight – more likely taking the pictures themselves.

And nowhere is the expression "Garbage in, garbage out" more true than photography. It doesn't matter how skilled you are with *Photoshop*, you need a decent picture to start with. You're never going to be able to make a silk purse out of a sow's ear.

But as you've probably discovered, taking quality, interesting, usable pictures of people is not as easy as it looks – which is why talented snappers such as Bailey and Rankin command the telephone number rates they do. And it's money well spent. The advantage of using a professional photographer is obviously that you can rely on their expertise as well as your own.

When funds won't stretch to a commission, though, you need to be able to come up with the goods yourself – often against a deadline. Over the next three pages you'll find expert tips on how to create perfect pictures of face and body at the capture stage.

Controlled studio versus realistic location?

The advantage of working in a studio is that you have maximum control over the picture. You can place lights exactly where you want them, and modify them with softboxes, umbrellas and snoots to give diffuse or contrasty illumination to create any effect you like. You can select from a wide range of backdrops, and have the added comfort of being indoors.

But if you're not careful, the results can have an artificial feel to them, so sometimes it's better to shoot on location, where the results will seem more 'real'. By using portable flash units with a range of accessories and large reflectors, you can still exercise plenty of control, and you can use settings it wouldn't be possible to create in the studio. On the downside, you are at the whim of the elements.

Plan your perspective with lens choice

When many photographers consider lens choice, they think mainly about how much more or how much less a particular focal length will include. But equally important is the perspective. As well as taking in more of the scene, wide-angle lenses open up perspective, enabling you to create a relationship between the foreground, middle and background of the picture. Unless the person is close to the camera, they'll often be relatively small in the frame, making wide angles great for environmental portraiture.

Telephoto lenses, on the other hand, compress perspective, making things that are wide apart look like they're closer together. When photographing individuals, the most flattering focal length range is from 80mm to 150mm (in the 35mm format).

Get the lighting effects right

Light creates many moods, from soft to harsh, from bright to weak, from warm to cool. When you're an amateur, you can get away with using whatever light there is – but when you're working as a professional, you need to decide what kind of light you want and either find it or create it.

There are whole books written on the subject of lighting, but a simple rule is to use just one main light, with weaker lights or reflectors providing fill-in. As the great photographer Terence Donovan was fond of saying, "There's only one sun." If you use too many lights, you'll get too many shadows, and it just looks wrong. Unless you want a 'character' portrait, in which contrasty lighting is appropriate, you'll want the soft illumination you get on a hazy day outdoors or from a softbox in the studio.

Expressions bring faces to life

You'll normally want your subject to express an emotion of some kind – there's nothing worse than a blank stare. A couple might be full of *joie de vivre* at having a new baby, or a managing director might exude a warmth that says "trust me".

Over the course of just a minute, the human face can register an extraordinarily wide range of expressions, and the secret of success lies in eliciting and capturing the emotion required. Professional models can usually give you the expression you want on demand, but if you're working with people not used to being in front of the camera, you may need to coach them and take lots of pictures to get what you want.

The relationship between the photographer and the subject is essentially a partnership, where both work together to produce the best possible images.

Directing your model's posture and poses

Being able to pose people effectively is one of the most important skills of portrait photography. Leaving your subject to their own devices is often a recipe for disaster – since most will stand with their hands dangling by their sides or folded across their chest staring like startled rabbits at the camera.

People don't know how to pose. It's not something that's taught at school, and for most people it doesn't come naturally. So you'll have to offer some guidance

about how to stand and where to look. Even professional models need some instruction if they're to give you what you need. You don't have to be bossy – just offer clear, direct suggestions as to what you want.

A three-quarters position, with the person at an angle of 45 degrees to the camera, is a good default pose – and much better than square on. Whether the person is sitting or standing, this pose is slimming, since the rear hip is partly behind the front hip.

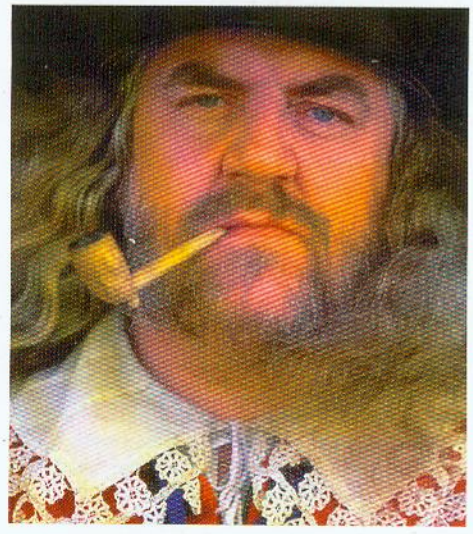
Remove or avoid distracting elements

If you want to improve your photography, always look around the edge of the frame to check there's nothing distracting before you fire the shutter. Areas of bright colour, even if they end up out of focus, can catch the eye and result in an unbalanced composition. Pieces of litter when you're outdoors are a terrible eyesore and make a picture look messy, while the inclusion of unnecessary clutter will always disturb the equilibrium of a picture.

Of course, if you're shooting digitally, these elements can be cropped out later or even retouched, but why not make life easier for yourself and avoid them in the first place? Spending a couple of minutes tidying up, removing clutter or picking up litter will pay real dividends in making your finished photographs look considerably more professional. Such 'gardening' is standard practice for professional photographers.

Another common problem is having extraneous elements in the background. You might even end up with the infamous telegraph pole coming out of the top of the head, if you don't pay careful attention to what's in the background. When framing up a shot, you should always spend at least a few seconds evaluating the best vantage point – and that includes taking account of the surrounding area.

Simply taking a couple of paces to one side can often produce a slightly different viewpoint with a significantly better backdrop. Alternatively, try crouching down so your subject is seen against a clear blue sky, or find a higher position so all they have is the green of a crisp lawn behind them.



When the subject is full of character, zoom in close and include the minimum of the background material.

Composition considerations

For many people, composition is a natural, intuitive process. They look at the subject and the scene, raise the camera to their eye and take the picture. Somehow it seems obvious that the image should be framed in that particular way.

But in reality there are many, many different ways in which the photograph can be composed, and the more conscious you are of the choices you're making the more successful the shot is likely to be. Two of the most important things to think about are where to place the subject and how big they should be.

Are you looking to capture character, shoot an environmental portrait, or photograph something else entirely? The kind of picture you have in mind will to some extent determine how big you want the person to be in the frame. As a rule of thumb, in photographs where the surroundings and background are also important, you'll show less of the person than in shots where the emphasis is on them as individuals.

Crop in close to your subject for impact

The famous war photographer Robert Capa once said, "If your pictures aren't good enough, you're not close enough" – and that sentiment is also true of portrait photography. As a general rule, the more you crop in on the person, the greater impact the shot will have.

On occasion you might like to take that thinking to its logical conclusion and crop in ultra-tight – chopping off the top of the person's head, their chin and possibly even their ears. There's no rule that says you have to show the whole of someone's face. So be bold. If you have a zoom lens, set it to its longest setting and crop in as close as you possibly can.

Make your subject stand out by using depth-of-field

If your camera gives you direct control over the aperture, you can determine how much of the finished picture will appear in sharp focus – the depth-of-field. Photographs in which there's a large zone of sharpness have extensive depth-of-field while images in which only a part is in focus have limited depth-of-field.

The principal factor that determines depth-of-field, along with the lens setting used and the distance to the background, is the aperture. Small apertures, such as f/16 and f/22, give extensive depth-of-field, especially when combined with wide-angle lens settings and placing the subject close to the background.

But to make the subject stand out, you should go for a large aperture, such as f/4 or f/5.6, together with a longer lens setting and having the subject further away from the background.

Accentuate the positive and minimise the negative

People come in all shapes and sizes, and a skilled portrait photographer knows how to make the best of his sitter and produce a flattering picture.

For example, If you want to make someone short look taller, all you have to do is shoot from a slightly lower angle – but not so low that you start to exaggerate the perspective. If someone is exceptionally tall, shooting from just above their eye line will give an attractive result. Once again, it's important not to overdo it or it'll look as if you're looking down on them.

The more someone is squared off to the camera, the wider they will look. So with larger individuals it can be more flattering to have them at an angle to the camera, and standing rather than sitting.

If your subject has an unusually large or long nose, ask them to tip their head back a little. If you have a zoom lens, setting it to its longest position and working from farther away will also improve matters.

When the chin is sagging, shoot from above head height and ask the sitter to lengthen their neck by leaning forward – this gives the effect of tightening loose skin. A 'weak' chin can be enhanced by shooting more from underneath.

Use props and accessories – but not too many

Sometimes you'll want your picture to tell a particular story, and that means introducing props and

10 common mistakes

There are ten things you really don't want to find yourself doing...

1 Don't use the camera's built-in flashgun unless you absolutely have to – the results will be harsh and unflattering.

2 Don't ask people to say 'cheese' – you'll end up with cheesy expressions.

3 Don't allow the camera's autofocus sensor to go between the heads of couples, or you'll end up with the background sharp and the important elements out of focus.

4 Don't shoot under fluorescent light – it's hard to get the balance right and the tubes, which are usually on the ceiling, produce ugly shadows.

5 Don't risk holding the camera at longer shutter speeds – even the slightest movement from the camera or person can result in a blurred image.

6 Don't get bossy and start ordering your subjects around – you'll lose rapport and it'll be obvious in the shots.

7 Don't just shoot pictures and sort out problems later – look around the frame before pressing the shutter release, to make sure there are no distracting elements.

8 Don't be afraid to suggest the model changes their clothes if you think they're unsuitable.

9 Don't forget to take some reflectors – they're the single most valuable accessory when you're photographing people.

10 Don't reformat the storage card on a digital camera without checking you've downloaded all the images.

accessories. If you want to show someone on a building site, you'll probably have them wearing a hard hat. Give someone a fishing rod and it looks immediately as if they're into angling. Many such items can be bought or borrowed fairly easily. But if you need something more exotic, there are specialist prop companies where you can hire just about anything by the day.

Of course, an image can look crass and clumsy if the person is overloaded with props. This could result in the composition looking *less* real, not more. As a rule, it's better to pick a couple of things that say what you want unambiguously, rather than throw in everything and the kitchen sink.

Create a sense of depth with foreground interest

All too often pictures lack a sense of depth, with everything seeming to be a long way off in the distance. One way of getting round this is to place something in the foreground or at the side. Strengthening the edges helps concentrate attention on the most important part of the picture — the subject — while at the same time giving the whole image a much more three-dimensional feel.

Placing something like a vase of flowers or another person right at the front of a portrait not only creates that sense of depth but can also add much-needed colour to the shot.

With imagination, virtually any strong upright or horizontal shape can be used to form part of a frame. Don't worry about trying to get the foreground sharp. In fact, your eye will be most drawn to the main subject — and the sense of depth will be enhanced — when the foreground is out of focus but still recognisable.

Try to capture a sense of mood

Sometimes you can get everything right technically, yet the portrait itself looks dull and uninspiring. It's so frustrating. When you took the shot you probably thought you were onto a winner, but now you've got it back you're disappointed and are left wondering where you went wrong.

What might be lacking is mood, the magic ingredient that can transform a mediocre picture into a masterpiece. Mood is an elusive thing, so it's tricky to define. It's easy to recognise when you see it, but it's a lot harder to generate yourself. In fact, it's such a valuable commodity that professionals who seem to be able to create it at will can command astronomical sums for making people look absolutely superb in advertising and editorial projects.

Expressing mood in your portraits is not just a matter of what you shoot, but more to do with how you go about shooting it. The aim of mood is to give a picture an extra dimension, which arouses an emotional response in anyone looking at it.

Create a sense of something happening

If you want your picture to be interesting, so that the viewer connects with the subject, you need to create a sense of something happening. So look for ways of preventing everything looking static. Have the person engaged in some kind of activity, but not in a clichéd pose like answering the phone! Or you might try to get a sense of movement by using a long shutter speed to create blur.

Shoot lots of different options

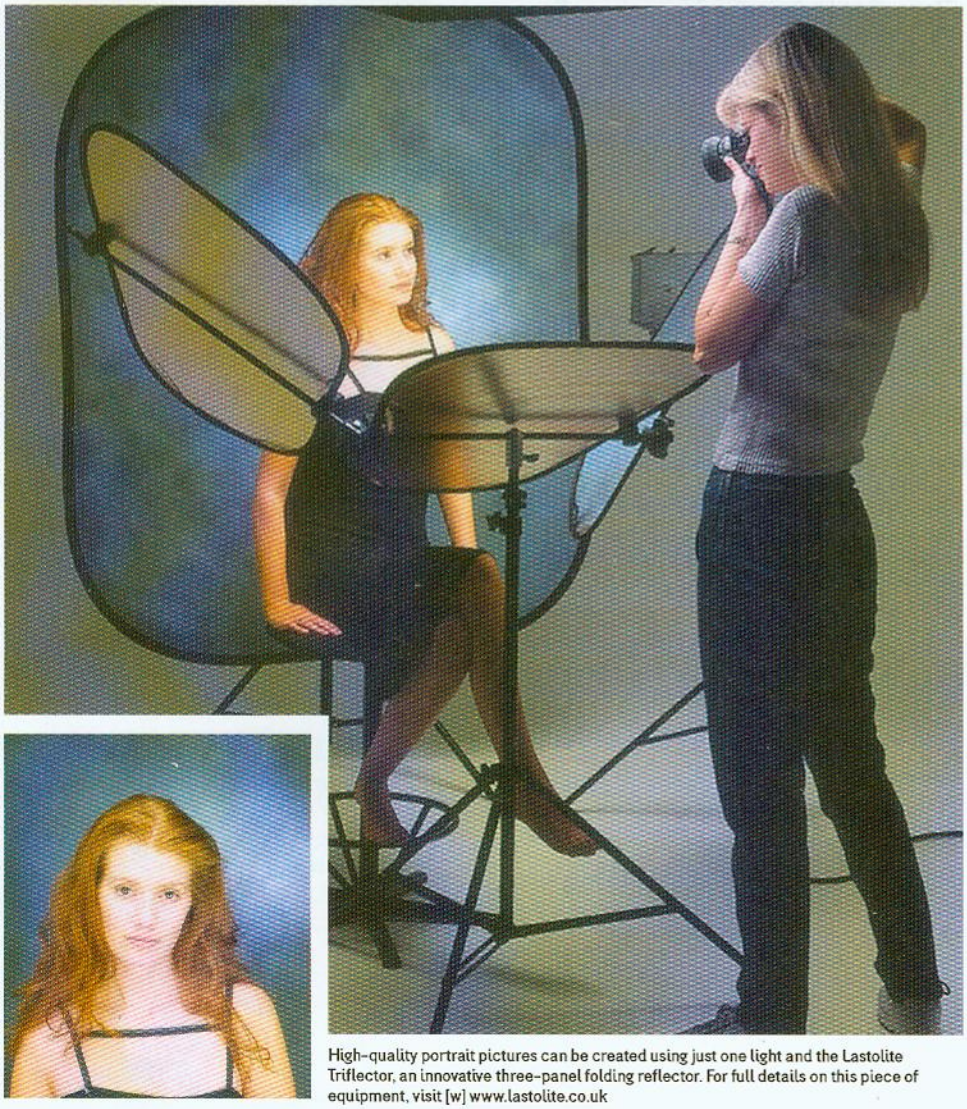
As you develop the project, your ideas may change — in turn, changing your requirements. So when you're taking the pictures, ensure you shoot a variety of poses and perspectives, including upright and horizontal compositions, which will enable you to develop your thinking without constraints at the design stage.

Be imaginative with couples and groups

One of the most challenging areas of portraiture is photographing couples and groups, because there's so much more to think about and attend to than with single subjects. Each person needs to be visible and well-posed, but you don't want them lined up as if they're about to face a firing squad.

Success in posing groups is, to a large extent, a matter of where you position the heads, because they'll almost always be the focal points in the picture. And it goes without saying that you don't want anyone obscuring the person behind them. A common problem is that people are scattered across the frame without any discernible arrangement.

Sometimes it works effectively to have everyone looking at the camera, but more often than not you'll want a picture that's more naturalistic, so you need to pose people as if you'd just captured the situation as it was actually happening. CAPA



High-quality portrait pictures can be created using just one light and the Lastolite Triflector, an innovative three-panel folding reflector. For full details on this piece of equipment, visit [w] www.lastolite.co.uk

Expertise provided by Steve Bavister. Steve is one of the UK's most experienced writers on photography and digital imaging. He's currently editor of *The Photographer*, the monthly magazine of the British Institute of Professional Photography, and has edited several other publications. He is the author of 15 books on photography, and also works as a professional photographer, shooting on commission and contributing to a leading picture library. Steve can be contacted at **[e]** steve@stevebavister.com

Paint a digital portrait

Painter offers all the natural media tools you need to create traditional paintings. We show you how to use them...

When working with a program as vast and nebulous as *Painter*, it's often tempting to try and use as many different tools and effects as you can. *Painter* provides a plethora of stunning natural media simulation tools, and the key to using them wisely is learning a little bit about restraint. For a natural media painting to look convincing, you should obey the rules of traditional painting.

For this image, we researched what the most common tools were for traditional paintings of this nature. Oil paints have been a favourite for hundreds of years; the fact that they remain wet and pliable for so long makes them ideal for any type of painting that involves blending, such as skin. Acrylics are another skin-tone favourite, although they tend to dry much quicker. Such real world limitations are lifted in *Painter*.

Layers are an indispensable tool for this sort of work and the logic of using layers will reveal itself to you soon enough as you work through the tutorial. You'll see how flexibility is preserved via careful use of layers and groups. But most importantly, you'll see how intelligent use of a few carefully selected tools can yield stunning results.

The original photograph needed for this tutorial can be found on the cover CD. Navigate your way through these folders: Software\Tutorials\In The Mag\2D Painter.

Derek Lea is a professional illustrator based in Toronto, Canada. His work draws upon disciplines as diverse as 3D modelling, traditional painting, vector illustration, image manipulation and original photography. Derek regularly contributes editorial content to *Digital Camera* magazine as well as *Computer Arts*. You can view a diverse cross-section of his work at **[w]** www.dereklea.com

Part 1: Getting started

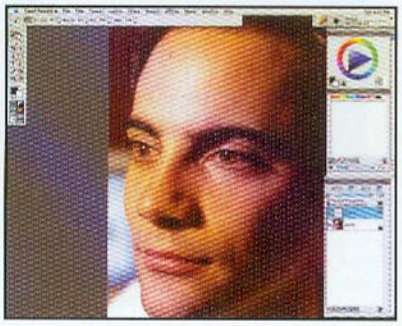
Create a pencil sketch to use as a guide, by tracing a scanned photo of your subject...

Locking layers

When working in an application such as *Painter*, it's easy to get lost in the creative side of the process and end up painting on the wrong layer accidentally. To remedy this mistake before it happens, it's a good idea to get into the habit of locking layers that aren't currently in use. To lock a layer, click in the empty space to the right just under the layers icon in the Layers palette. A lock icon will appear to indicate that it's locked. Click on the lock icon to unlock it.

Naming layers

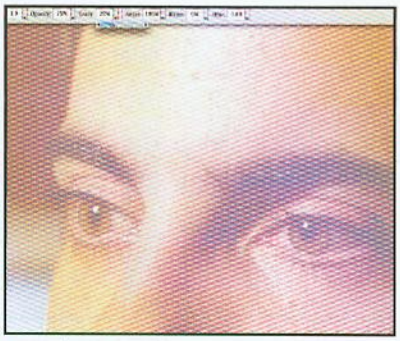
During this project you'll build up a lot of layers within your document. This is a good thing because it preserves many aspects of your painting and makes them editable at any point. The caveat when working this way is that the Layers palette can become quite cluttered and confusing. Getting into the habit of naming your layers and layer groups will help you recognise your desired layers instantly within the palette. To name a layer or group, double-click the icon in the Layers palette. A layer attributes box will open with a field that enables you to type in a name.



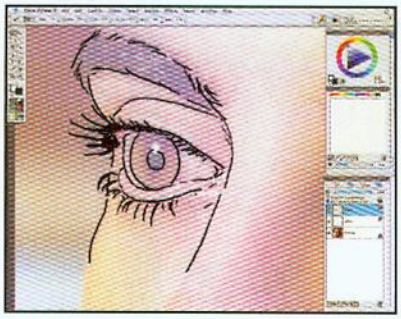
1 The first thing you'll need to do is launch *Painter* and open the file face.jpg from the cover CD. We're going to make him face the other way so choose Effects>Orientation>Flip Horizontal from the menu. In the bottom of the Layers palette, create a new layer by clicking on the New Layer button at the bottom.

2 By default, the primary colour is black and the secondary colour is white. Click on the colour swap icon in the toolbox to switch them. With white as your primary colour, select the Paint Bucket tool and click on your new layer to fill it. Reduce the opacity of the layer in the Layers palette to about 55 per cent.

3 This layer of white is here to soften the effect of the underlying image. You only need to use the photo for tracing purposes at this point. Softening it helps you to see the sketch lines better. To begin creating the sketch lines, select Pencils as the Brush Category in the Brush Selector bar.



4 Select 2B Pencil from the Brush Variant menu in the Brush Selector bar, although it doesn't really matter which variant you choose because the sketch is only used for a guide. In the Properties bar, set the size to 3 pixels, and set the opacity and the grain to 2 per cent.



5 Click on the colour swap icon in the toolbox or the Colours palette to make black the primary colour again. Now use the Zoom tool to come in closer on the face. With your new layer selected in the Layers palette, take your time and do a thorough job of tracing the outlines of the facial features.

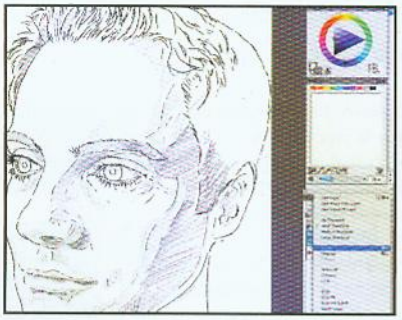
6 Be sure to draw some lines that differentiate areas of highlight and shadow. Also, feel free to switch the white layer off or reduce the opacity of it when it obstructs your view of certain areas. Choose a lighter grey from the Saturation/Value triangle in the Colours palette, and use it to slightly darken shaded areas on your sketch layer.

Part 2: Preparing paint

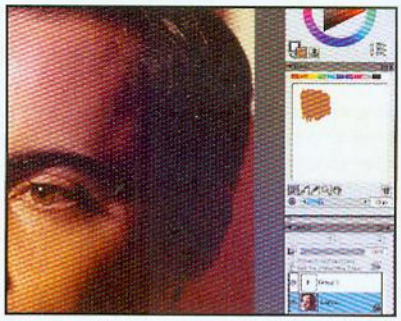
Get ready to paint the skin by carefully mixing a series of different colours in the Mixer palette...

Colour management

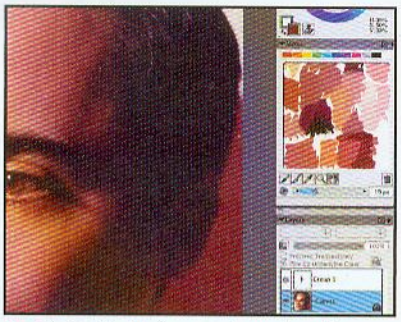
Painter 8 provides you with a quick and easy way to manage colour for a number of individual devices such as press output, printers, monitors and scanners. The Colour Management window can be found at the bottom of the Canvas window. This is an unlikely place as most users will probably look for it under the Preferences options. Anyway, in the Colour Management window, each device has a pull-down menu that lists preset profiles, or you can import a custom profile of your own. It would be nice if the monitor section had the flexibility of *Photoshop's* colour settings, but it still works well.



1 Select the white layer and return its opacity to 100 per cent in the Layers palette. Hold down the Shift key and click on the sketch layer to select them both. Select Group from the Layers palette menu to group them. With the layers grouped you can enable or disable their visibility together, as well as change the opacity of them together.



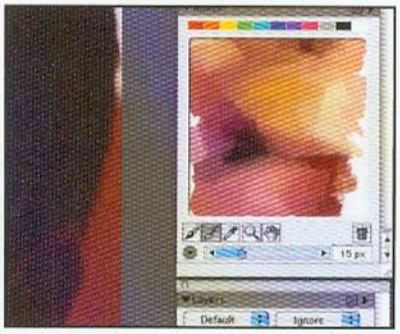
2 Switch off the visibility of your sketch group in the Layers palette for the moment and select the Eyedropper tool from the toolbox. Use it to sample a skin colour from the image and make it the primary colour by clicking on it. Select the Apply Colour tool in the Mixer palette and add the current colour to the mixer.



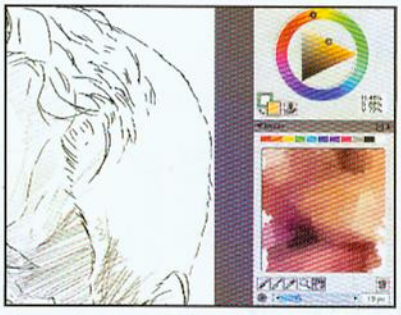
3 Go back to the image and sample another colour and add it to the mixer using the same technique. Repeat this until you've filled the mixer with a nice cross section of skin-tones in varying hues and values. It's okay if your colours touch. If you find that you're running out of room, use the Pan tool to move around within the mixer.

Brush tracking

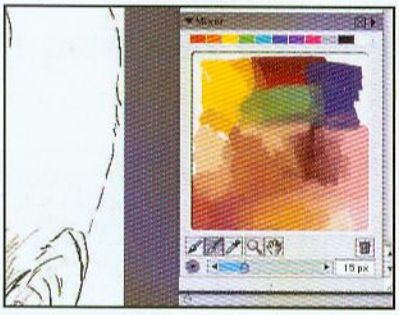
When you start using *Painter*, one of the first things you should do is set up the brush tracking. The Brush Tracking dialog is found under the preferences sub-menu. You will be presented with a scratch pad on which to draw a brush stroke. Using typical pressure and speed, draw a single stroke. *Painter* interprets the stroke and creates a blueprint for how the application will respond to the way you paint when using the natural media tools.



4 In the Mixer palette, select the Mix Colour tool and use it to push neighbouring colours into each other within the mixer. By blending colours in this manner you'll be able to create a stunning amount of skin-tones that would have been a lot more work to create in the Colours palette.



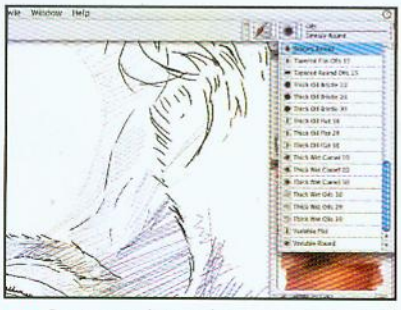
5 You don't have to limit yourself to the available colours in the reference image, so enable the visibility of the sketch group in the Layers palette to hide the reference image underneath. Once you've achieved a nice representation of skin-tones, use the Colours palette to create an unrealistic yellowish colour.



6 Pan in the mixer to a clear area and add this new colour to it. In the Colours palette, create an unrealistic red and add it to the mixer. Repeat this process to add a bluish black and a slight olive green. Having a few unconventional colours to use in various places will help to make your painting anything but mundane.

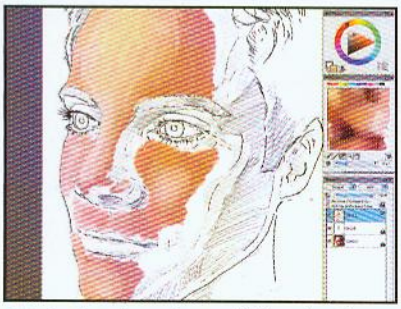
Part 3: Painting skin

Oils, the traditional artist's choice for skin, are combined with water to create a convincing effect...



1 Create a new layer in the Layers palette and set the Composite Method to Default. Select the Brush tool from the toolbox. Select Oils from the Brush Properties bar. Because we're going to block in large areas of colour, choose the Smeary Round brush variant. This preset provides good coverage and a convincing bristle.

2 Based on the underlying reference image, select a mid-tone skin colour from the mixer using its sample colour tool. Make sure that the 'Pick Up Underlying Colour' option for your new layer is not enabled. Roughly begin to paint the colour you've chosen into the appropriate areas, but stay away from the eyes and the lips for now.



3 Continue to sample some lighter colours from the Mixer palette and use the current brush to paint them in the appropriate areas on the current layer. Continue consulting the reference image often by switching off the sketch group and paint layers to see it. Then switch them back on and add more paint.

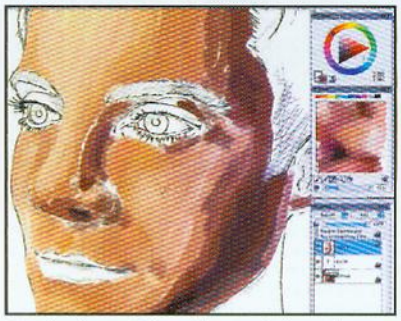
Mixer contents

The Mixer palette is probably one of *Painter's* most important recent advancements. One thing that makes this better than any traditional paint-mixing palette is that the paint never dries and you can save the contents to use later once you've cleared the mixer. Choose Save Mixer Colours from the Mixer palette menu to create a preset file for your current contents. Choose Load Mixer Colours from the palette menu and navigate to your preset file to reload them at any point.

Custom palettes

Another great interface feature is the ability to create custom palettes containing just the brushes you use frequently. To create a custom palette, simply click on a Brush Category icon and drag it out into the workspace away from the Brush Selector bar and release it. A floating palette will be created. You can add additional brushes to it by dragging them over from the Brush Selector bar.

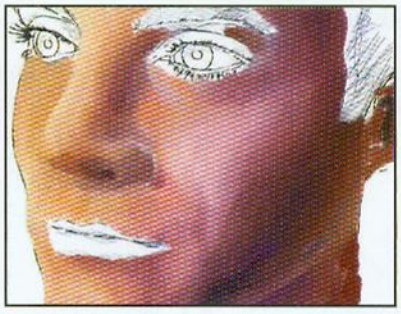
4 You'll notice that colours begin to blend together nicely as you use different paints on top of each other with repeated strokes. Go ahead and blend a little, but your priority here is to get the proper ranges of colour into the proper areas of the face. Select a darker colour from the mixer and add it on to the current layer.



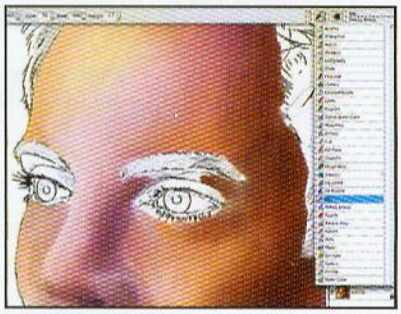
5 Continue painting with some darker colours. The smeary round oil brush is ideal for skin because it drags underlying pixels more than it applies new paint. Each stroke that overlaps another blends realistically and provides all of the advantages of working with traditional oil paint, which has always been ideal for painting faces.

6 To get more of the paint and less underlying pixels, reduce the bleed slider in the Properties bar, which is currently set at 100. This will help if you simply want to block in basic colour quickly, but the trade-off is a less than genuine effect. Only do this for blocking in simple colour, and when finished, return the bleed amount to a higher value.

7 Also, reducing the Feature setting to a lower value in the Properties bar will remove the bristle appearance of the brush and enable you to create basic strokes of colour. Again, this should only be reduced to maximise your colour placement and then be returned to a higher value to preserve the excellent natural media simulation.



8 Create a new layer and enable the 'Pick Up Underlying Colour' option. From the Brush Selector bar, choose Blenders as the Brush Category and Just Add Water as the Brush Variant. Increase the size to about 56.6 in the Properties bar and paint over your underlying oil paint on the new layer using the Just Add Water blender.



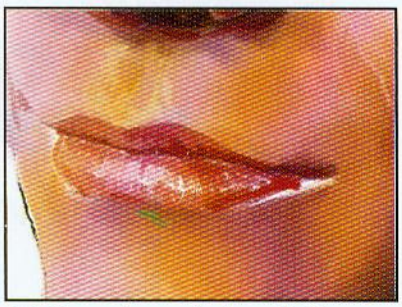
9 This method of adding colour and then blending it together is an essential basis for creating convincing skin. When you're happy with your blending, select the skin and the blended skin layer in the Layers palette and group them. Create a new layer in the Layers palette and select Oils once again from the Brush Selector bar.

Part 4: Detailed skin

The technique is the same, but smaller brushes and extra care is needed for the more detailed areas...

1 Select Smeary Round as your variant again to pick up underlying paint when painting over existing colour. Reduce the size to about 15.6 and reduce the feature to 2.9 in the Properties bar. Carefully paint in some colour around the eyes – take your time and don't be afraid to blend the oil paint more aggressively this time around.

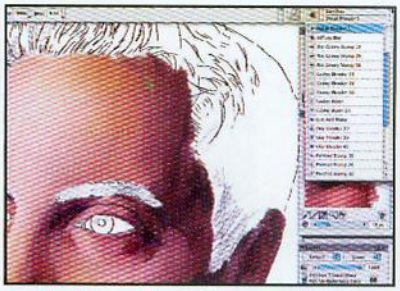
2 Use this small brush to paint oil into many other detailed areas, such as the nose. Use a variety of colours from the mixer and also use the Eyedropper to sample colours from the existing skin. Feel free to reduce the size of the brush more for sharper detail. Also, reduce the opacity of the brush and use it to paint over and blend colours slightly on this layer.



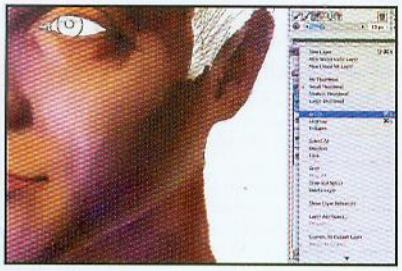
3 Also, spend some extra time on the lips. Getting them right is very important. Use more reddish hues than you did for the skin. Sample some new colours from the reference image or create them in the mixer if necessary. And don't forget about the unconventional colours you created earlier – add a few strokes of them here and there.

Part 4: Detailed skin continued...

4 The hints of other unconventional colours will help make sure that the face doesn't appear too monochromatic, which is often a risk when painting skin. When you've finished with the fine details, increase the size of the brush, select a dark colour from the mixer or the canvas and paint some sharp shadows in areas like his temple.



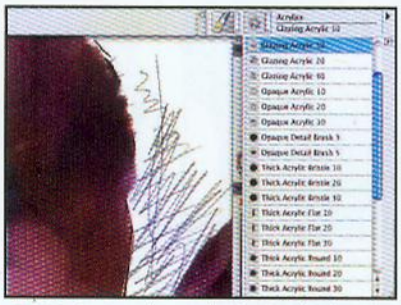
5 Create a new layer in the Layers palette. Ensure that 'Pick Up Underlying Colour' is enabled. Select blenders from the Brush Category pull-down in the Brush Selector bar. Select Detail Blender 5. Like the name suggests, this blender is designed to be used with finer details like those we've created.



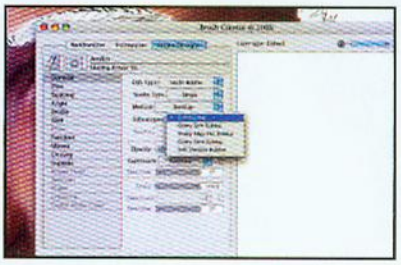
6 In the Properties bar, increase the size to around 10. On your new layer, use the blender to paint over the top of your new finer detailed work and blend it into the rest of the skin. Increase or decrease the size of the blender as needed. When you're finished, select this layer and the detail layer in the Layers palette and group them.

Part 5: Glazing skin

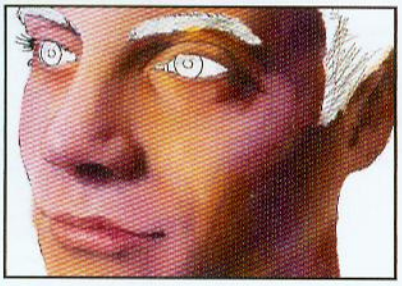
Saturate selected areas of the skin-tones by using a translucent acrylic glaze...



1 Create a new layer and select Acrylics from the Brush Selector bar. Select Glazing Acrylic 10 as the Brush Variant. In the Properties bar, increase the size to about 52 and be certain that the opacity is set low, somewhere around 2 or 3. Hold down the Option key to temporarily access the Eyedropper.



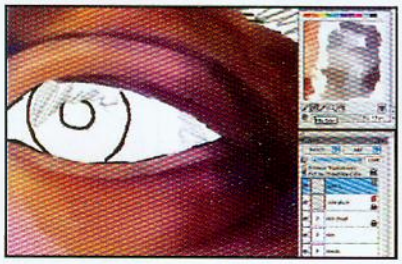
2 Click on an area where you'd like colour slightly more saturated (like the area on his cheek between the highlight and shadow) to sample it as the primary colour. Now choose Window>Show Brush Creator from the menu. Click on the General section at the left. Change the sub-category to Soft Buildup from Grainy Soft Buildup, for a softer effect.



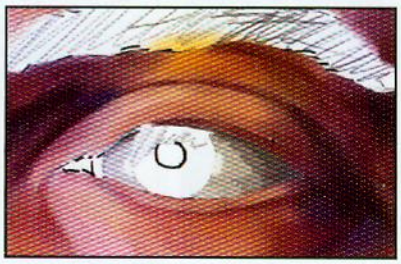
3 Paint over the area where you sampled the colour on the new layer. The build-up of the glaze will saturate the paint on the underlying layers. This effect can be easily overdone. If you find the saturation is too great when you're finished painting your glaze, reduce the opacity of the layer in the Layers palette until it becomes more subtle.

Part 6: Adding sparkle to the eyes

Use acrylic brushes to provide your subject with a pair of striking eyes...



1 Create a new layer, leave the Brush Category set to Acrylic but change the Brush Variant to Opaque Detail Brush 5. Use the Colours palette to create a grey colour and add it to an empty area of the mixer. Create a number of greys, cool and warm, and add them to the mixer. Use the Mix Colour tool to blend them together.



2 Consult the reference image for highlights and shadows and begin to use different greys to paint in the whites of his eyes on the new layer. Take your time and get the appropriate colour values in the proper areas. You can reduce the opacity of the brush in the Properties bar to achieve a more subtle blending effect between highlights and shadows.

3 Pan within the mixer back to your skin-tones. Select some nice pink tones and paint in his tear ducts. Then create a new layer with 'Pick Up Underlying Colour' enabled and select Blenders from the Brush Selector bar. The Detail Blender 5 variant should still be selected – choose it if it's not. Reduce the size to around 6 in the Properties bar.

Screen mode toggle

Choosing Screen Mode Toggle or typing Ctrl/Cmd-M on the keyboard changes the viewing mode within *Painter*. It will hide the desktop and other open apps in the background and surround your canvas with a neutral grey matte. This is a much nicer and less cluttered working environment. However, keep in mind that this will remove some of the features available in the lower-left corner of your window frame. The one you'll miss the most is the zoom slider. Everything has its price but this is a small one to pay; simply get into the habit of using the Zoom tool or the keyboard shortcuts instead.

4 Go ahead and employ what you've learned so far to blend the whites of the eyes on the current layer using the Detail Blender. Next, concentrate on the pupils and irises. Return to the Colours and Mixer palettes to create and blend a series of colours in the mixer for these. We've decided to make his eyes slightly greener than the reference image.

5 Switch the Brush Category back to Acrylics and Variant back to Opaque Detail Brush 5. Use the new colours from the mixer to paint the pupils and the irises on the current layer. Create a new layer with the 'Pick Up Underlying Colour' option enabled. In the Brush Selector bar, select the Blender brush and variant you used previously.

3 After you've blended the irises and pupils, select Oil Pastels and the Round Oil Pastel 10 Variant. Use the Pastel brush with a white primary colour to paint specular highlights on the eyes. Reduce the size in the Properties bar and add a few highlights to the tear ducts. Use a smaller version to add a few coloured lines to each iris.

Part 7: Painting hair

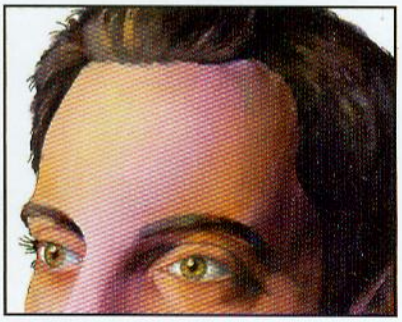
Use only a few wisps on appropriately coloured areas to suggest a full head of hair…

Tablet versus mouse

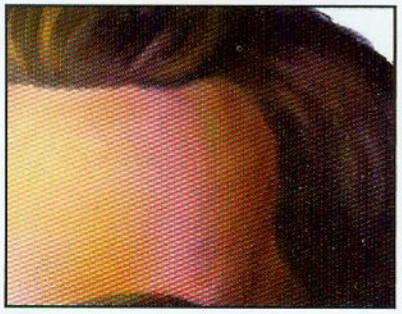
When you think about all the advantages of using a pressure-sensitive tablet like ergonomics and intuitive drawing, and you combine them with *Painter's* excellent integration of features like tilt and pressure, it's obvious that using a pressure-sensitive tablet is the ideal route to take when working digitally. However, if you want to give it a try using a mouse, *Painter* has some excellent features for mouse usage as well. *Painter's* Brush Creator has a stroke designer page that enables you to specify the use of a mouse and adjust settings for pressure, tilt, and bearing. Also, you can get into the habit of manually adjusting size, opacity, and grain in the Properties bar to simulate pressure.

1 Create a new layer with the 'Pick Up Underlying Colour' option enabled. Select Acrylics from the Brush Category. Choose Opaque Acrylic 30 as the Brush Variant. Sample colours from the hair and eyebrows in the reference image and create a set of colours in the mixer. Paint some hair using the new colours.

2 The Acrylics are useful for quickly adding areas of solid colour to your image. Don't worry about detail or wisps of hair yet, just get the proper colours approximately in the proper places. Reduce the size of your brush and add colour to the eyebrow areas as well. When finished, switch the Brush Category to Oils.



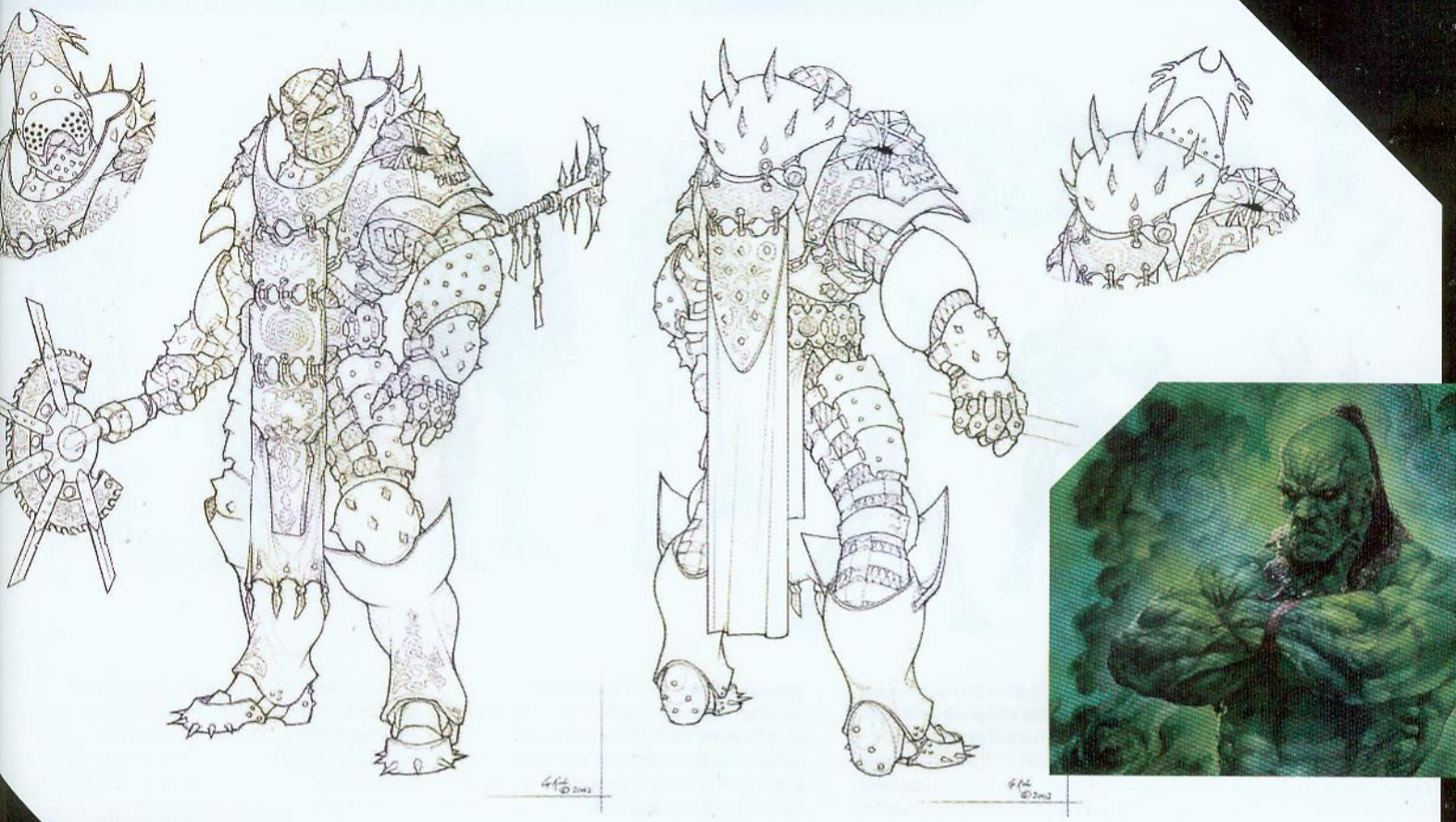
3 Select Glazing Round 30 as the Variant and gently paint over certain areas of the hair where you'd like to blend colours slightly – use the Eyedropper to select the underlying colours to paint with. Slowly build up the strokes to soften the sharp edges between colours. Throw in a few of the unconventional colours you mixed earlier.



4 Select Blenders from the Brush Category. Select the Just Add Water variant. Use this blender to carefully paint over all of the hair you've just created. Consult the reference image and paint in the same directions in which the hair flows – this will help to make the hair look more realistic. Carefully blend the hairline with the underlying skin.

5 Create a new layer with the 'Pick Up Underlying Colour' option enabled. Select Pastels from the Brush Category and Artist Pastel Chalk as the Variant, set the size to 10. Use the Eyedropper to sample colours from the existing hair and this new brush to paint wisps here and there over the existing hair, focussing on highlights and the hairline.

6 Reduce the size, and paint some more wisps throughout the hair. Add some short wisps throughout the eyebrows. Use varying sizes and colours sampled from the reference image to create his eyelashes. At this point, feel free to embellish at will, and create a background using everything you've learned so far. ca-p



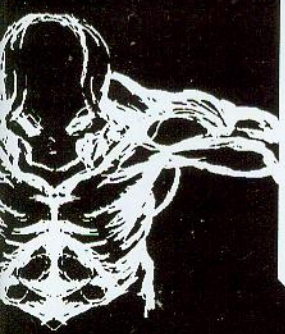
Above: Roberto Cirillo, Concept Artist at Core Design, explains how a final game figure emerges. "I start by sketching out the skeleton structure in its actual pose. Once I'm happy with the perspective, proportions and pose, I sketch out the different body parts."

Far-right: Already a renowned comic book artist, Greg Staples is also a co-founder of Sheffield-based Ark VFX. This image, Erhnam Djinn, was produced for Wizards of the Coast. Image © 2004 Wizards of the Coast

The fine art of figure drawing uncovered

Drawing the human figure is an art in itself, one which can be as frustrating as it is exhilarating. Here's what the experts have to say on the subject...

Words: Mark Penfold



There's no doubt that a good figure drawing can arrest the attention like nothing else. Perhaps it's the endless fascination we have with our own form that draws artists in, or it could be the challenge that thrills them. Either way, figure drawing is one of the most expressive and emotive art forms and offers huge rewards to those who practise it.

Many of the best figurative artists have turned a childhood obsession into a career. Comic book artist Greg Staples is typical: "I used to draw a lot of birds when I was small, then around the age of 12 or 13 I began drawing from comic books. To this day I still have a passion for drawing."

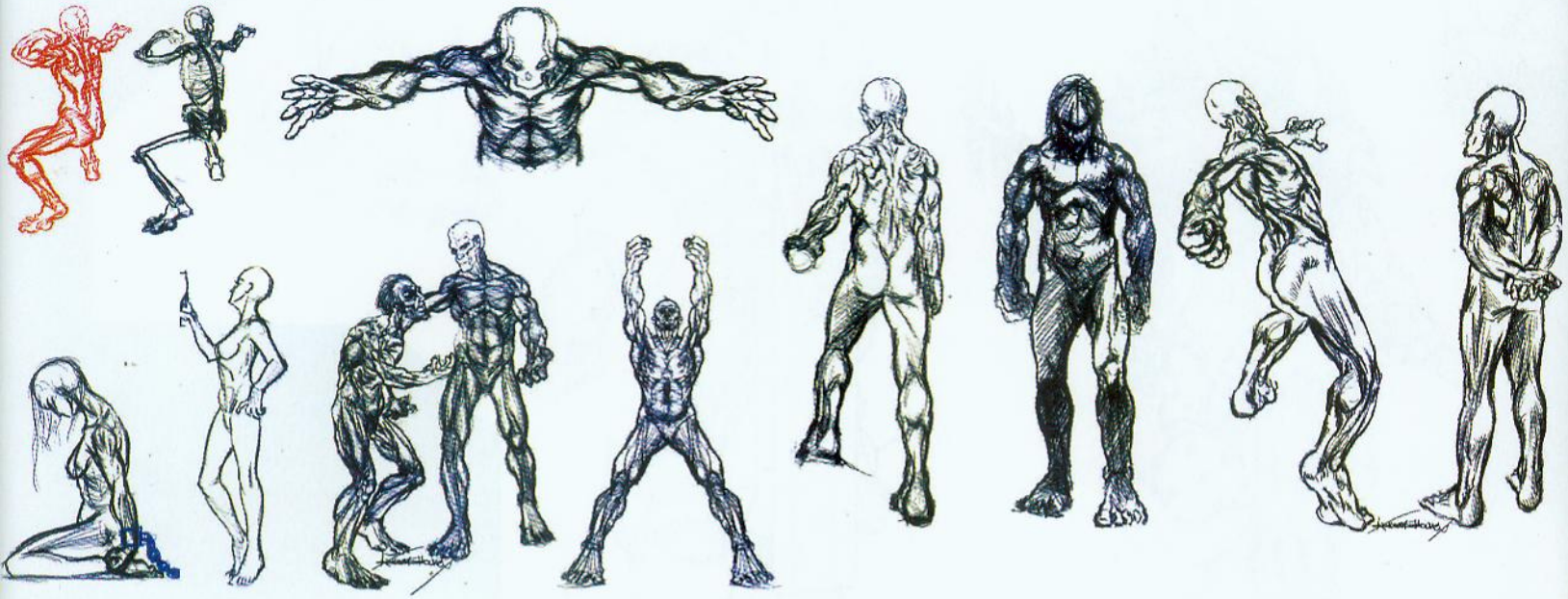
In this early phase, an artist lays the foundations upon which a style will be developed. Len Massey, drawing tutor at the Royal College of Art, laments the fact that education doesn't value drawing skills more highly: "Drawing should be taught and given the same significance as writing. Drawing is similar to writing in that both are vehicles for ideas. We can write and talk about our ideas and we can also draw them."

If you didn't spend your youth with a sketch pad in your pocket, the good news is that all is not lost. According to acclaimed animator and painter Simon Henwood, "Nobody takes to it straight away, it's about learning to look." Similarly, Greg Staples explains part of his work's fascination like this: "You can never truly master figure drawing. If you did, it would lose its appeal."

Learning to look

"One of the most important elements of a drawing is its level of emotional intensity. You have to look at a thing's thingness and as well as seeing it as an object, see its interconnectedness, its cultural significance and include that in your drawing." Len Massey encourages his students to engage with their subjects passionately.

Roberto Cirillo, Concept Artist for Core Design, gives the following advice: "Think



Above and bottom-right: "A good character design has to have another angle apart from just looking cool. You need to think about his personality, background and his context in the game or film." Kareem Ettouney is a Concept Artist for UK games developer Lionhead.

when you draw – why does that look the way it does? Understand that and you'll get it right. Practise, look, observe and again practise! There is no way around it." Kareem Ettouney, concept artist at games developer Lionhead, repeats this mantra, "Basically, you must be drawing from life models, anatomy books, great masters and comics all the time."

There's no end to the learning process – artists constantly evolve their styles and improve their techniques by whatever means are available. That could mean life-drawing classes, copying comic books or using Greg Staples' secret weapon: "Medical text books are great, but the best thing for learning anatomy is body-building magazines."

Kareem has an interesting story: "Even Peter Paul Rubens, who was one of the greatest masters, used to copy whole paintings from older masters like Titian even once he was established as one of the greatest painters of his day." Simon Henwood adds: "Look at as many great styles as you can but don't try to emulate them. If you do, you'll get trapped when you need to do something you haven't got an example to copy from."

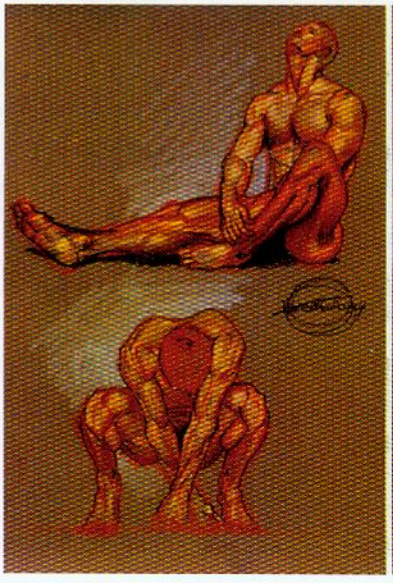
Conversely, you shouldn't feel pressured into having an individual style, as Kareem warns: "One thing I can advise is not to rush trying to have a unique style in your art. Let that come naturally and it will."

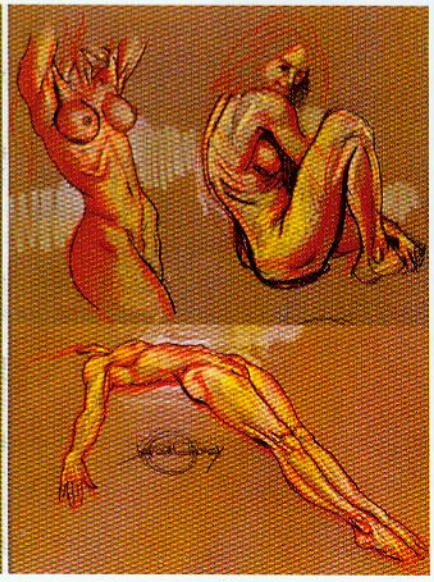
Rough technique

There is a huge range of techniques and approaches which will improve and develop your drawing. The key is to find one which suits you. Greg Staples explains: "I used to draw a stick figure then block in the muscles. This technique is good for building dynamic poses. Eventually the stick figure stays in your head and you can start with the muscles." Greg continues: "I usually draw a thumbnail sketch to get an idea together, then I blow this up on the computer and work it up from there. This is a lot easier than starting from a blank page."

Len Massey brings it all back to how you see things, "You have to look at things like an anthropologist. 'Why do I walk in circles when I'm waiting for the bus?' You have to look at gestures because these are drawings." The best way to learn is to "get a set of sketch books, one of which should be small enough to fit in your pocket and take it everywhere".

"You must be drawing from life models, anatomy books, great masters and comics all the time"





He adds, "For drawing what's in front of you, I think Betty Edwards' book *The New Drawing on the Right Hand Side of the Brain* is an excellent place to start, as is spending a bit of time drawing those around you and their relationship to the environment. Everyone can draw, it takes practice and passion."

Roberto puts it like this: "Every little bit of the body complements the next and the previous – in other words, there aren't any easy parts to draw, it all really depends on how much knowledge the artists has on the subject." He adds, "Don't try to draw the whole figure unless, and until, you're fully aware of all the key parts that make it! Practice and understand the single parts first."

Above: More drawings from Lionhead Concept Artist Kareem Ettouney.

Right: This warrior figure was created by Core Design's Roberto Cirillo, who stresses that "Sketching out the skeleton structure is the most important part of the figure-drawing process."

Digital domain

"Computers are a great tool, but there's no substitute for the physicality of drawing on paper," says Len Massey. "No matter how good the simulation, you never get the built-in noise, which comes from working with charcoal – the smudges and the fingerprints. If you want to draw in the digital environment, why not give a line behaviours and instead of taking a line for a walk see where the line takes you?"

As a labour-saving device, the computer is indispensable, as Rob Cirillo attests: "At least 30 per cent of my work is computer assisted: digital clean-up, digital variations, digital colouring, sketching and painting. It can be a great time-saving machine, I really love it!" The crucial thing to remember, however, is that half of what makes a figurative artist great is the willingness not to take the shortcut. Greg Staples illustrates this perfectly: "You have to be inventive – my style develops every day. Today I'm using a can of chalk. It's taken all morning to get the hang of, but now I'm seeing results." cg•p

Animating characters

How to bring characters to life for gaming and animation...

Generating images for use in animation and 3D gaming is a more rigorous challenge than most life drawing would stand up to. As Roberto Cirillo points out, "A key factor is that you won't get away with just one drawing and a round of applause. We're talking of character sheets and attitudes that need to be developed for each character to help bring him to 'life' within the game context."

Not only that, but the fact a character will be translated into 3D 'reality' means any fudges which would be fine in perspective will only be highlighted in the migration to the digital world. Kareem Ettouney knows the deal: "The more an artist knows about anatomy, perspective, light, composition, and so on, the more he has the ability to bend the rules. In other words, the more rules you know, the more rules you can bend."

"To design a good character it has to have another angle apart from just looking cool. It's always great to have a cool-looking character, but at the same time if cool is the only criteria then sometimes the character looks shallow." Whatever the technical constraints, the same underlying principles apply to illustration for games as they do for any other drawing: your feeling and appreciation of the subject will guide your work.

SECTION **TWO:** PROJECT 2

Create a stylish fashion illustration

Taking inspiration from the catwalks, combine figure-drawing techniques with *Photoshop* to create this season's hottest illustrations...

The art of fashion illustration is to give the viewer an insight into what is in vogue. Taking cuttings and writings from magazines and Websites is a good way to keep you up to date with what's appearing on the catwalks.

The aim of this tutorial is to encapsulate all elements of fashion into contemporary illustration. Most of Patrick Morgan's work uses a combination of traditional drawing techniques and computer rendering – the computer enables him to perform updates easily and also speeds up the whole production process. Fashions are always changing, and using a computer enables illustrators to respond to the fast-moving world of fashion design.

Expertise provided by Patrick Morgan. Patrick started his career as a freelancer designer after completing a degree in Graphics and Illustration with Commendations for Print Making. His clients include Selfridges, Gordon's Gin, Hewlett Packard, 3 mobile, Impulse deodorant and the National Library, and previous clients include the Body Shop, Levi's and British Airways.
[e] patrick@patrickmorgan.co.uk
[w] www.patrickmorgan.co.uk

Part 1: Scanning and cleaning

Start by scanning in a sketch of your choice and cleaning it in *Photoshop*...

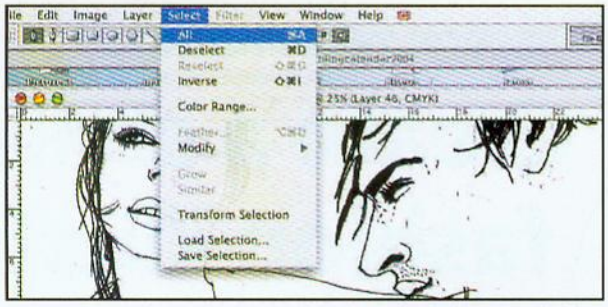
1 Here we've scanned an image from a sketchbook. Use either a line art option (depending on your scanner driver) or the standard 24-bit colour scan. Make sure the image is scanned at 300dpi if it is to be used in print (as this image is going to be). Naturally, for the Web, you can scan at 72-96 dpi.

2 After scanning in the images, it's important to decide whether you want a strong black line finish or a more pencil grey effect. For this particular image, we've chosen to go with a harsh contrast effect – so the blacks are black and the whites are white.

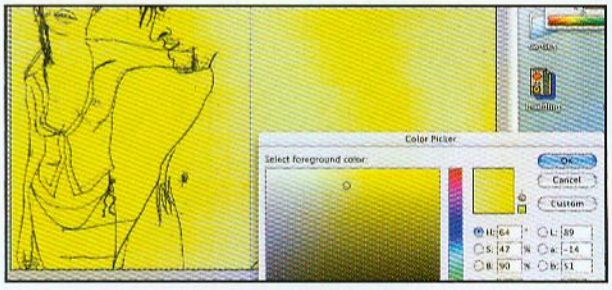
3 After scanning your image, you may find that there's dust and dirt on the digital image. Here, using the Cmd/Ctrl+[+/-] tools, zoom in on the black-and-white areas of the image. Once you've found your dirty areas, you're ready to start cleaning up the artwork. The aim is to get the artwork as clean as possible. Using Levels in *Photoshop*, bring out the white in the scan. After this stage, you're not only ready to start, but you can also send it off to the client to be proofed.

Part 2: Introducing colour

Choose your colour scheme and fill in the background and foreground elements...



1 You now need to work out your colour scheme for the illustration. The best way to do this is to imagine your illustration is a screen print – plan your layers, and how they will fit on top of each other. On your base image, select all (Command+A) then create a new layer and fill it with your base colour.



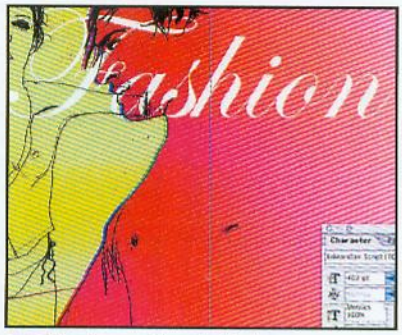
2 To fill the background, first select your choice of colour by double-clicking on the foreground colour in the main Tools palette, and either choosing a colour using the Eyedropper or specifying a CMYK value. Hit OK, fill the new layer and then, in the Layers palette, adjust the Fill to around 30 per cent and the opacity of the layer as necessary. Your background line art will show through.

3 Now your backdrop colour is filled, the aim is to start filling in the people or the objects in the composition. Starting with the main subject matter – the guy – get a base-coat down so you can start layering over the top. Select the man using the Magic Wand tool. Select the area that you want to fill – we've selected the negative and then inversed the selected area. Create a new layer.

4 To fill the guy and integrate this particular section into the illustration, we're going to use a gradient. On the new layer, the selection should still be active. Using the Gradient Blend tool, select a gradient that goes from magenta to pale pink. Create a new layer and slightly offset the selection and do a new gradient fill. Here we've chosen a rainbow effect. The illustration now has movement in the colour facets to give a screen-print effect.

Part 3: Decorative elements

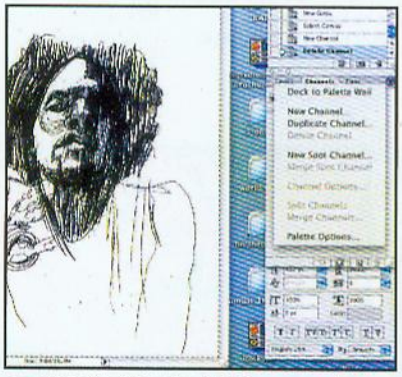
Use layers and alpha channels to give texture to your illustration…



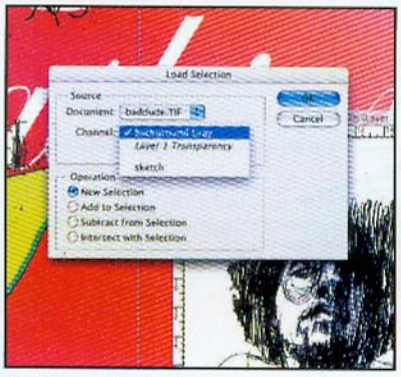
1 The aim now is to make the image more decorative by incorporating text which subtly gives the impression of textile design. Here, we've scanned a textile sketch-like backdrop using raw drawings straight from the sketchpad. This part of the illustration is given a more layered and built-up effect rather than a flat blended colour – moving away from the flat vector look, the aim of this illustration is depth and complexity.

2 When the image has been scanned and opened in *Photoshop*, you need to convert it to greyscale. When you convert the image to greyscale, select 1 in the ratio entry field for exact one-to-one results.

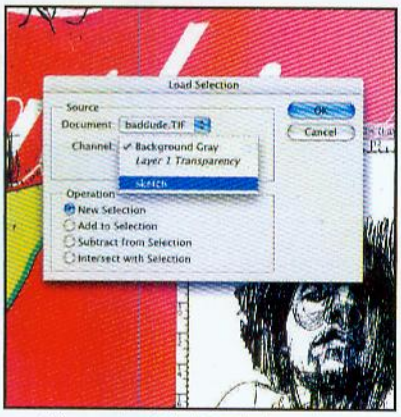
3 Next you need to make an alpha channel – enabling white to become transparent and the line artwork to be filled and keep a line. Select all using Cmd/Ctrl+A or Select>Select All and then copy the image (Cmd/Ctrl+C). Open the Channel palette.



4 Once the Channel palette is open, you have to create a new channel (alpha channel). Click the small arrow in the Channels window and select New Channel and name it: sketch. When you've created a new channel, the image will go black. Select the new channel and then print the image by pasting it on it.

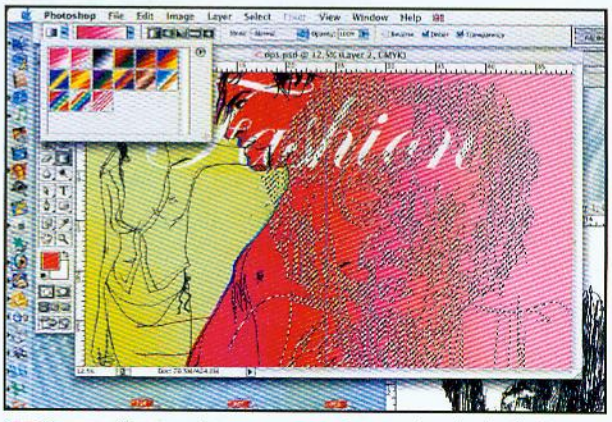


5 The next step is to load in the new alpha channel as a selection. Go to the Select menu and scroll down until you get to Load Selection. Once the Selection box is opened, click on the channel bar to open a drop-down menu showing all the alpha channels. Select the new channel (sketch). Click inverse and then OK.



6 When you've clicked OK, the box will create a selection marquee around the black areas, allowing you to print an apache layer. This enables you to fill the area with light colours rather than deep colours using the Multiply blending layer.

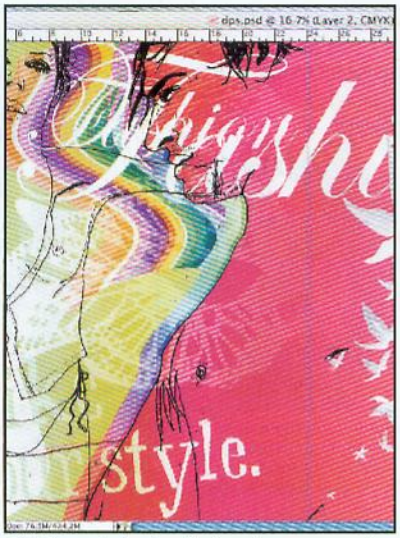
7 Convert the image to CMYK by going to Image>Mode>CMYK. This enables you to fill the marquee with the colour of your choice (rather than a shade of grey).



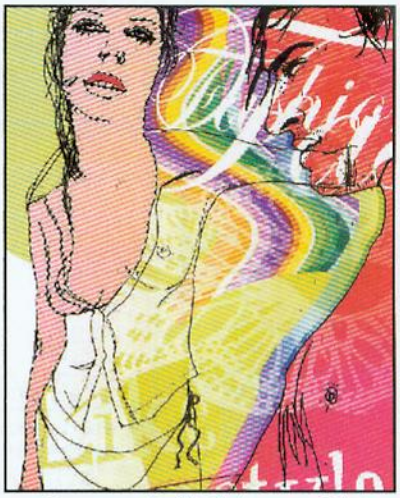
8 You can either move the marquee across to your artwork using the Move tool, or do the colour filling on the present layer. Here, we've dragged the marquee over to the final artwork on to a new layer and then filled it with a gradient from magenta to pink.

Part 4: Finishing touches

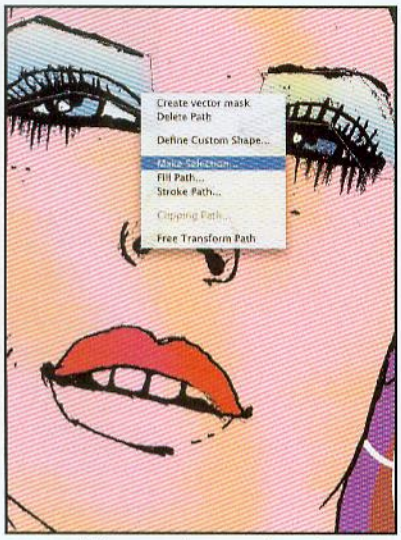
Add more details and textures until you've got a striking result...



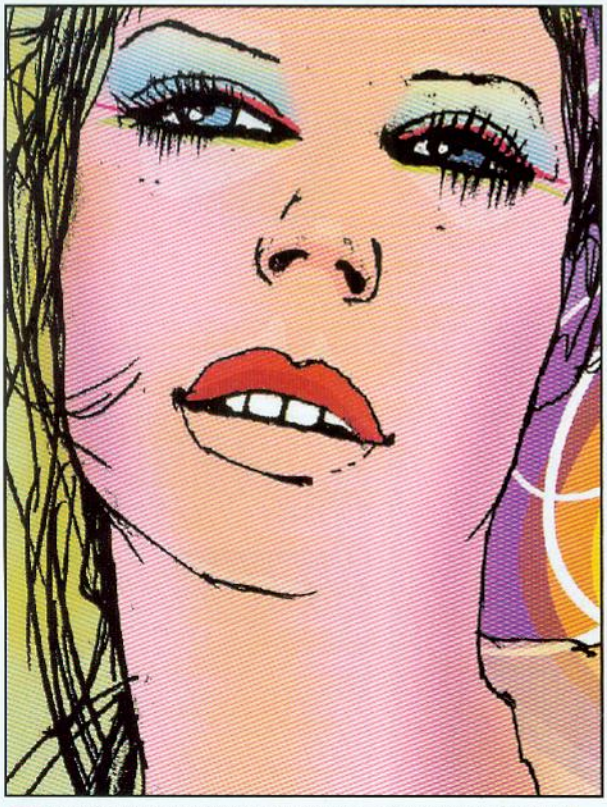
1 The next step is really down to your personal preference. Get more images from your sketchbook, or scanned in from various other sources. The idea is to apply numerous layers with different designs and textures – from scanned-in fabrics to colour drawings.



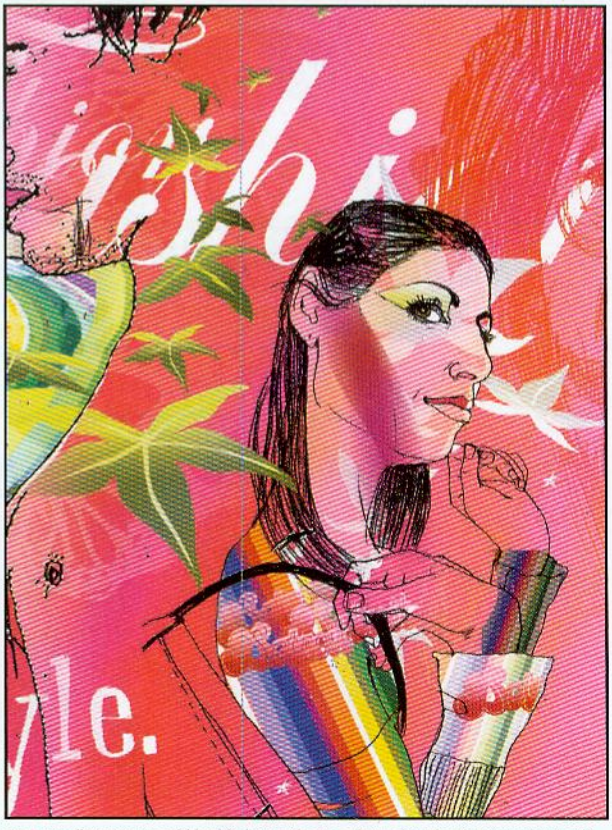
2 You now need to fill in the face areas. Select the layer you wish to work on, then decide which areas you wish to fill. Select the Magic Wand tool and select the areas to be filled. Create new layers for each fill area. Pick the colours you plan to use, select the area and fill either using the foreground colour (Alt+delete) or background colour (Cmd/Ctrl+delete).



3 To add the eye make-up, use the Path tool to create a smooth area. Select the Path tool and draw the area you wish to fill using the normal Bezier Curve technique. Once you've created your path, you need to make it a live selection marquee (using the icon at the bottom of the Paths palette).



4 Once the area is live, fill the make-up. Here, we've chosen a gradient fill going from pale blue to transparent. This will give the effect of how real make-up is applied to a model going onto the catwalk. If the areas seem to be too ridged around the edges, use the Gaussian Blur filter. Blur the mascara to a point where you feel the eyes look real enough.



5 Finally, you can add highlights to the people to give the depth to finish off the composition. Select the layer you wish to highlight by drawing a path around it with the Pen tool. Turn this into a selection. Using this function, you can create various effects like the leaves and text used in the illustration. ca-p

SECTION **TWO:** PROJECT 3

Helping hands in Photoshop

In this tutorial we'll show you how to draw and paint a hand, with some help from *Photoshop 7's* dynamic Brushes palette and the Layers palette...

Drawing hands can be quite daunting, since they're often considered to be one of the hardest parts of the human body to illustrate and paint. However, mastering the task of drawing hands is easier than you think. By simplifying the initial sketch of the hands into basic shapes and then working them up into more complex forms, we can make the process a lot easier for you, and this is the first area we'll explore in this tutorial.

We'll use *Photoshop's* brush tools and dynamic Brushes palette to do our initial sketch and then work it up into a more complex painting. We're going to adopt the style of Pierre Auguste Renoir, the French Impressionist artist. The loose wet-in-wet technique used by Renoir will be applied throughout and we'll also consider skin-tones and form. In addition, we'll use the Layers palette and Blending Modes to help produce some painterly effects.

Expertise provided by Jason Cook. You can contact Jason at **[e]** jc@jacey.com or see examples of his work by visiting his Websites at **[w]** www.jacey.com or **[w]** www.jasoncook.co.uk

Some reference files to help you with this tutorial can be found on the cover CD. Navigate through these folders: Software\Tutorials\In The Mag\2D_hands.

Part 1: Start sketching

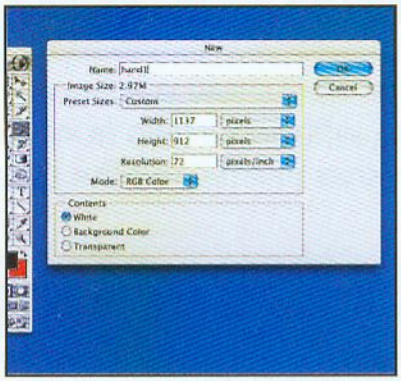
Set up your canvas and start sketching with the mouse or pen. Then give your image more tonal range, similar to how a painter would do an under-painting...

Cylindrical fingers

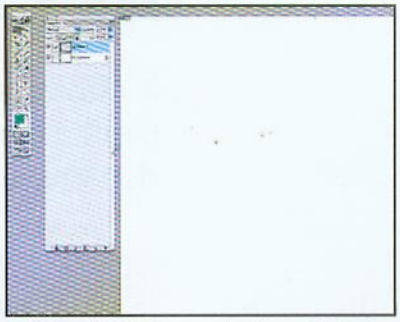
When you begin sketching, it helps to break down the hand into simple parts such as circles and ovals. If the hand is moved or changes position, the shapes will need to change to suit the new position. The best way to draw a finger is to picture its parts as simple cylinders.

Take control

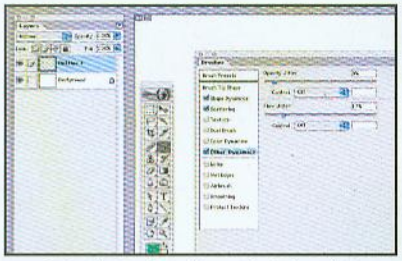
Compatibility with the Wacom Intuos pad has been improved, which means you get greater control over brush strokes. Pads take a bit of getting used to but once you've got the hang of working with one, there'll be no going back to the mouse. You can also use the Angle Jitter option, which enables you to control your pen's tilt or pressure when applied to a stroke. If your pad isn't compatible, a warning icon appears next to the selected option.



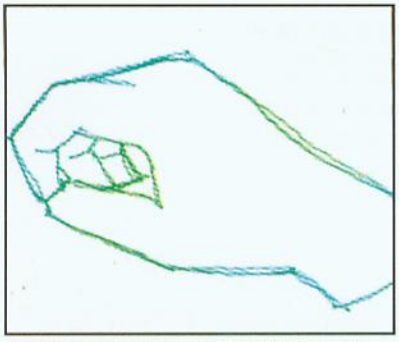
1 Start by going to File>New and setting the Preset Sizes to Custom. Then set the Width to 1137 pixels, the Height 912 pixels, and the Resolution to 72dpi. Set Colour Mode to RGB and switch the Contents bullet point to White. Finally, fill in the Name box, calling the document: Hand1.psd



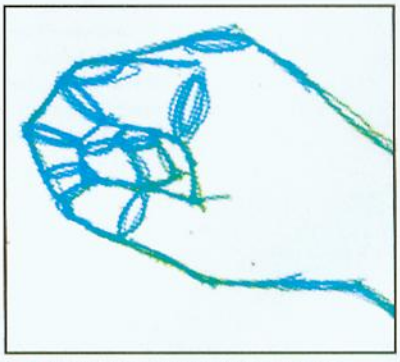
2 Now click the foreground colour on the Tools palette to open the Colour Picker. In the RGB values boxes enter these settings: R:86, G:187 and B:134, then click OK. Go to Windows>Layers to show the Layers palette and click on the 'make new layer' icon at the bottom. This will provide you with a new layer on which to sketch your initial outline of a hand. Double-click on the name and rename it: Outline1.



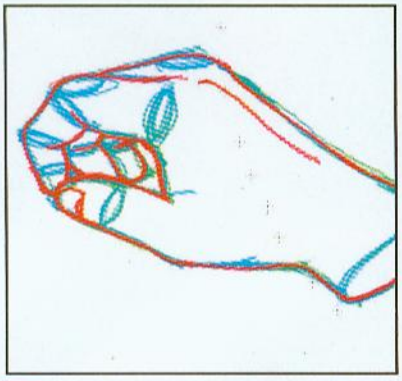
3 Select the Brush tool from the Tools palette and make sure the Brushes palette is showing. Click Brush Tip Shape at the top-left of the palette. Select the 5-pixels brush, with Hardness set at zero and Spacing set at 25 per cent. Now click on the Shape dynamics to make it active and then click its name to bring up the option. Set Size Jitter to 12 per cent, Control to Off, Minimum Diameter to 1 per cent. Then select Scattering and set Scatter to 11.9 per cent and Count to 1 per cent. Finally, select Other Dynamics and set Opacity Jitter to 9 per cent and Flow Jitter to 17 per cent.



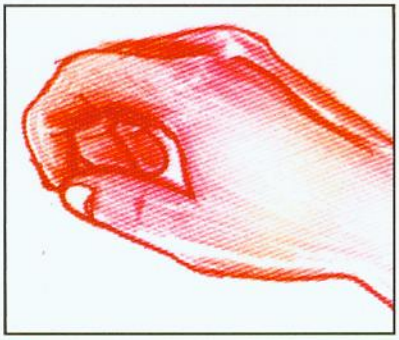
4 Then click on Brush Presets at the top of the palette. Click on the arrow at the top-right of the palette and select New Brush – give a new name to the brush you've created and save it. Using your new brush, draw your hand as a very basic shape. Try to see it as a glove or a mitten with the thumb being one part and the four fingers being the second part.



5 Now create another new layer and call it: Outline2. Then set the foreground colour to R:3, G:164 and B:217. Use the previous outline as a guide and give the hand more shape. Use the cylinder approach by trying to view the fingers as simple ovals and circles. By using this technique, you'll start to create a kind of robotic-looking hand.

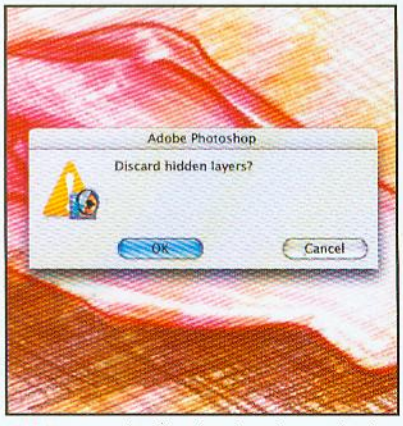


6 Now set the foreground colour to R:215, G:32 and B:40. Then create another new layer in the Layers palette and call it: Outline3. Again using the previous layer as a guide, draw a much neater and refined outline of the hand and introduce finger nails and creases on the finger and thumb.



7 Create another new layer and call it: Outline4. Then hide the layers Outline2 and Outline1 by clicking the eye icons on the appropriate layer. Set the opacity of the brush to around 50 per cent to reduce the strength of the brush and create a result similar to the above image. Shade in the hand and give it a bit of tonal range. Experiment with different strengths of the brush.

8 The next step is to fill in the background to help convey a bit more depth to the sketch. Choose a background colour and create a new layer called: Background1. Sketch in the background, again experimenting with the strength of the brush. Try to introduce crosshatching with your brush movements to speed up the process of filling in the background area.



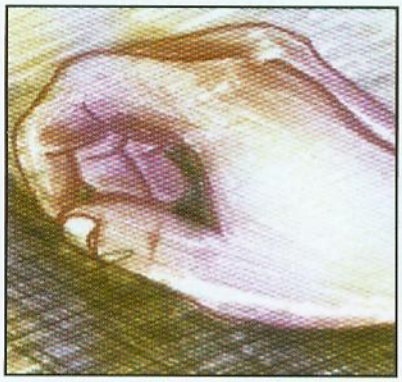
9 Now save this file as hand1.psd to your hard drive and then go to Layer>Flatten Image and click OK to discard hidden layers. Then resave this flattened version as: hand2.psd.

Part 2: Painting the foreground and background

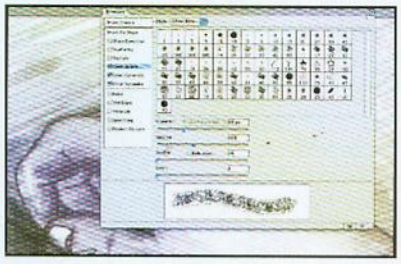
You now need to paint the background before moving onto the foreground elements. This gives you scope to experiment and try brushes before moving on to the finer details of the hand...

Dual brush

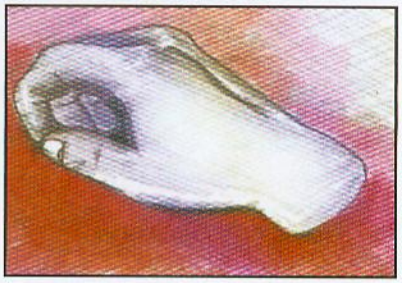
Just below the Shape Dynamics and Scattering options in the Brushes palette, you'll find the Dual brush. As its name suggests, it enables you to select a second brush tip to use in conjunction with your primary brush tip, giving various stroke effects with added complexity. Also included in this option is a choice of how the second tip blends with the primary tip. As with the Blending Modes in the Layers palette you can apply multiply, darken, overlay, colour dodge and so on. By experimenting with the two brush tips and simply applying the hard mix Blending Mode, you can quickly achieve a soft, dabbled, watercolour brush effect.



1 With your new flattened image, you can de-saturate the colours so they don't interfere when you come to apply the paint colours. Go to Image>Adjustments>Hue/Saturation and set the Hue to +13 and the Saturation to -75. Set Lightness to zero, then click OK.



2 Set up a new brush to use for the background. Choose the Dry brush with a radius of 39 pixels from the Brush Preset palette. The Spacing should be about 1 per cent. Activate the Dual Brush button, click its name and set Mode to Linear then find and select the Chalk brush, with 60 pixels and Spacing set to 81 per cent. Now go to Colour Dynamics and set the Foreground and Background Jitter to 57 per cent and turn off all the other options. Finally, go to Other Dynamics and set Opacity Jitter to 10 per cent and Flow Jitter to 16 per cent. Now create a new layer and call it: Background1.



3 Set the Opacity for the brush to around 60 per cent and save it to your palette. Then change the foreground colour to R:135, G:20 and B:26 and gradually start to paint around the bottom of the picture and below the hand. You'll notice that, as in real life, once you've stopped painting and start again, the paint is layered over the previous paint you've applied. This means the paint will start to become denser. Make the paint denser nearer the hand and lighter further away. Again, use the opacity setting to vary the strength of the brush.

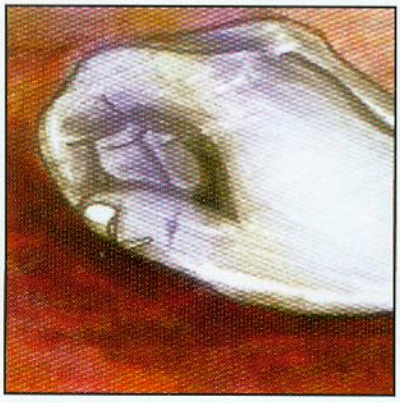
Realistic layering

With Colour Dynamics selected in the Brushes palette you can create highly realistic layering of paint over paint. By selecting the amount of jitters and the purity, you have a lot of control over these variations. This comes quite close to achieving natural media and traditional paint qualities in a digital program.

4 Now set the foreground colour to R:97, G:29 and B:30, and set the brush opacity to 100 per cent. Start to paint around the edge of the hand to make it even denser and darker in that area. Save this new paint layer as: Background2.

5 Create a new layer and call it: Background3. Set the foreground colour to R:152, G:50 and B:63. Then switch off Colour Dynamics for the brush. Switch on Noise, Wet Edges and Airbrush and make sure the opacity is set at 100 per cent for the brush. Then start to paint in the same way as the above picture, paying careful attention not to paint over the hands.

6 Set the foreground colour to R:161, G:142 and B:117, then create a new layer to work on and call it: Background4. Then set the Blending Mode for this layer to overlay and add paint around the hand. Notice the effect you start to achieve having changed the Blending Mode from normal.



7 Create a new layer called: Background5. Use the same foreground colour and set the Blending Mode to multiply, to work a bit of a shadow under the hand. Experiment and if it goes wrong, just delete the paint and start again.

8 Now select the Background1 layer and then change your brush to the Eraser tool in the Tools palette. Select one of the preset Brush tools in the Brushes palette with a radius of 43 pixels and no other options selected. Then make a few sweeping strokes to delete bits of the paint and make the background image fragmented. Notice how you can achieve further brush strokes by actually deleting the paint.

9 With everything you've learnt so far, change the brushes and make them smaller and vary the jitter effects. Keep painting and experimenting until you get the desired look you're after. One piece of advice would be to try to make the paint look as a natural as possible – look at the brush strokes of past masters and check out the works of Renoir on the Web.

Reflecting skin-tones

There is no set formula for painting skin-tones because every scene is different. The skin's appearance will vary depending on the conditions or surroundings and the way in which light falls on it. And, of course, everyone's skin-tone is different; we all have individual skin types and textures, so try not to see the skin as one tone but as a variety of tones.

If you look closely at a person's skin, you'll see that it's not evenly coloured. You can see here that the hand in this tutorial has thinner skin around the knuckles, and the veins in the top of our hands cause the skin to look blue and purple. Being aware of these variations in the skin will help you to achieve a realistic skin-tone, even if you're working in the style of an expressionist painter.

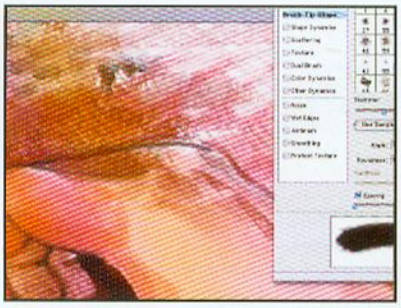
Also try to add colours that surround the skin. For example, our hand has a reddish background, so try to introduce reds into the skin to make a harmonious balance.

Part 3: Painting the hand

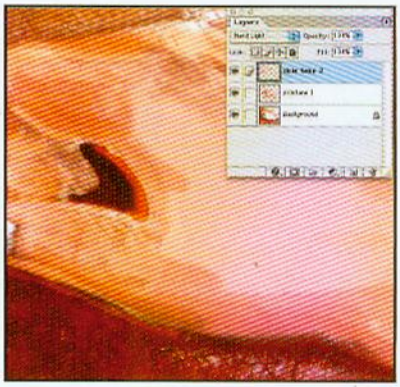
It's time to apply paint to the hand using a variety of brushes to achieve the desired look...

Erasing layers

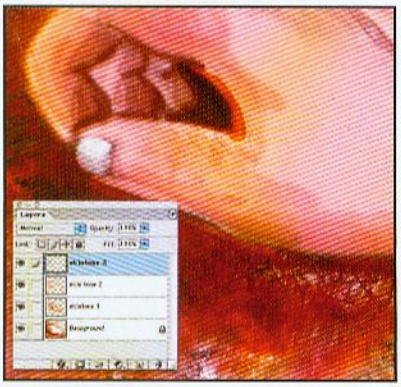
Instead of using the Brush or Airbrush tool, have a go at using the Eraser tool with the Dynamics applied to erase layers of paint from your image. This will generate some unexpected results, many of which are not possible in traditional painting.



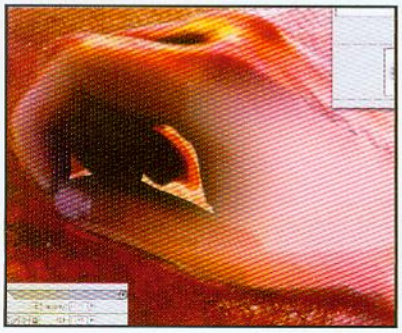
1 Flatten the image and resave it. Now create a new layer and call it: Skintone1. Make the foreground colour R:235, G:196 and B:181. Select the Brush tool again and set the opacity of the brush to around 33 per cent and select a brush with a radius of 45 pixels. Make sure it's one of the preset paint or chalk brushes within the palette. Then gradually paint the hand, working over the top of the areas where the skin-tone will be darker. This helps you to build up a tonal range on the hand.



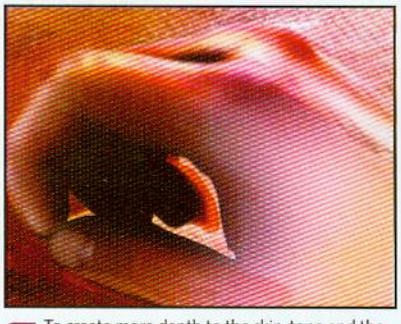
2 Now create a new layer and call it: Skintone2. Set the foreground colour to R:224, G:178 and B:160. Then use a similar but smaller brush to paint around the edges of the hand to give it a highlight. Once you're happy with the result, set the Blending Mode to hardlight.



3 Make the foreground colour R:145, G:83 and B:55 and, using the same brush, paint areas of the hand that would be darkened with shadows. Try to avoid it becoming too dark or black. Then use a smaller brush to tidy up these edges if the paint is overlapping into the background.



4 Flatten the image and save it as a new file. Choose a much softer brush: one of the standard brushes in the palette with a round soft feathered tip with a radius of around 35 pixels. Paint in the areas around the fingers, using similar colours to those you've already used but much more washed out, and then try adding some colours from the background to make a harmonious balance.



5 To create more depth to the skin-tone and the overall painting, balance dark areas next to light areas. So use a white or very pale colour to highlight the outer edges of the hand and the knuckle areas. Then use a darker colour for the area underneath the hand. Experiment until you achieve the desired effect. It's important to gauge when it's right, because over-painting can make it quite murky and grey like in traditional painting.

6 For the final touch and to boost the colour of the painting, duplicate the layer (Layer> Duplicate Layer). Then set the Blending Mode to overlay and use the Gaussian Blur filter to blur the image to a radius of around 1.3 pixels. Finally, delete some of the areas of the layer to stop the image looking too saturated. ca-p

Model the perfect 3D face

Want to get your head around 3D modelling? We use *Maya* to show you how to build an animatable face feature by feature...

There are many ways in which to model a head in 3D. In this tutorial, we'll look at polygon modelling with subdivision smoothing for mesh refinement. This approach enables you to create the topology of the face mesh in a very direct and hands-on manner. With NURBS modelling, creating a human head can be problematic, and the best method involves stitching multiple surfaces together. This takes an awful lot of planning and isn't a method you can jump straight into. Polygon modelling enables you to correct mistakes more easily.

Correct topology (the way a surface is structured) is the single most important aspect of head modelling. We'll be creating special topological structures, known as 'edge loops', which outline areas of the face and mimic the rings of muscle under the skin. Without proper loops, a head will be difficult to animate. We'll also be making sure all the polygons have four vertices (called quads). A mesh of all quads is less likely to pinch when smoothed and animated.

Although this tutorial uses *Maya*, the principles employed are applicable whatever app you use.

All the source files needed for you to create this 3D model can be found on the cover CD in the Software\Tutorials\In The Mag\3D_Head folder.

Expertise provided by Simon Danaher. Simon is an acclaimed 3D artist and writer. He has worked in 3D for over seven years and has written several books on 3D and 2D graphics, and is currently working on another. You can contact him at [e] simon.danaher@ntlworld.com

Part 1: Initial features

Create a cage mesh in *Maya* and begin modelling the mouth...

Material changes

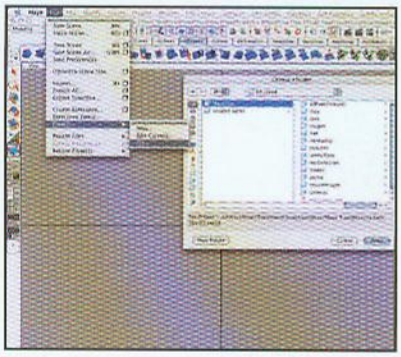
You can change the material to green so it's easier to see. Set the material properties and apply materials to objects using the Hypergraph in *Maya*.

Writing scripts

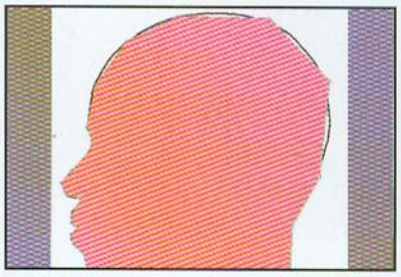
You can also create two scripts to change the visibility of the layers on which the proxy and smooth meshes appear as well as the transparency of the surface of the proxy mesh. This enables you to switch between the low-res cage and smoothed versions of the model as you work with a single click.

Using outlines

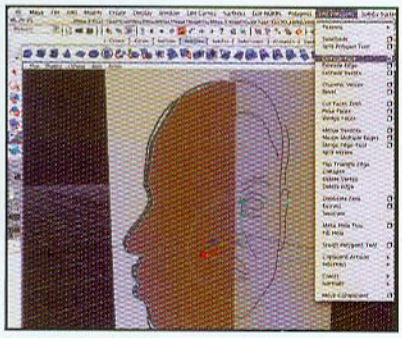
The main reason for the outline is to provide some sort of guide. Without experience, it can be hard to model a head in 3D from scratch. Starting with an outline can help, but it's not essential.



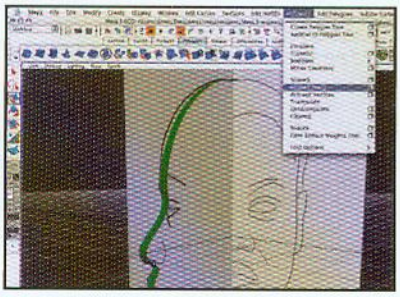
1 Copy the directory called 3D_Head from the cover CD to your hard drive. Set this as your current project (File>Project>Set...) then open the scene file FaceTemplates.mb.



2 Switch to side view and enable textured display (key 6). Now trace the outline of the head using a single polygon. In *Maya*, use the Create Polygon tool (Modelling>Polygons>Create Polygon Tool). Click around the outline to make the polygon, and hit Return to finish. Don't place too many points yet – just make a rough outline. Remember that this will be a cage not the smoothed surface.

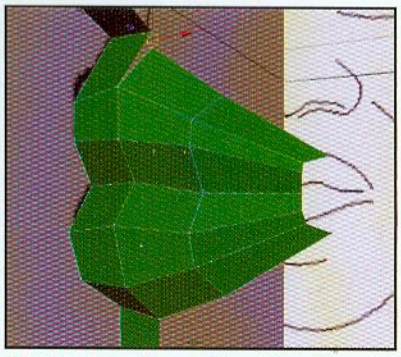


3 The face that's created is selected and extruded slightly to make a band of quad polygons right around the face. In *Maya*, use the Edit Polygons>Extrude Face command and drag the z handle to the desired distance.



4 With the face still selected, press Delete to clear it. Repeat for the face on the opposite side. Switch to object mode (right-click-hold or press F8 until the polygons turn green) and then use Polygons>Smooth Proxy. This generates a subdivided version of the cage – if you're using another app, apply its own subdivision surface option. The cage mesh is saved as Outline.obj.

5 Begin with the mouth. First, adjust the positions of the vertices so they match the template better, then select four edges that define the lips and extrude and adjust them to also follow the template. Repeat this to form two extra polygon segments for the lips. Since not all 3D apps handle edges in the same way, use whatever tools you see fit – it's the mesh topology that's important here.



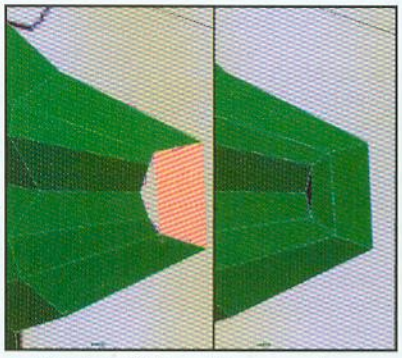
6 It's now time to create the first loop. You need an extra row of polygons above and below the lips, so add these by using Extrude Edge in *Maya*. Join any hanging points to the rest of the mesh using Weld or Merge Vertices.

Part 2: Creating loops

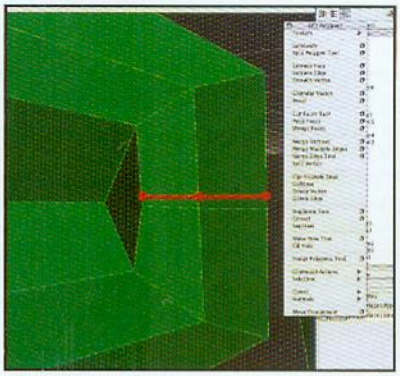
You'll need to use edge loops to mimic muscles under the skin. Without these, the head will be hard to animate...

Workflow considerations

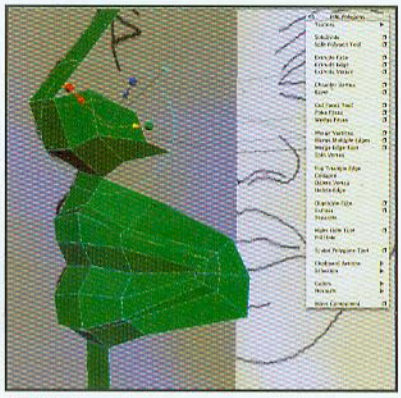
In reality, you might be better off fixing the lone triangle in steps 1 and 2 later when you add more detail to the lips. The reason we've suggested you do it here is to show you the workflow sooner rather than later.



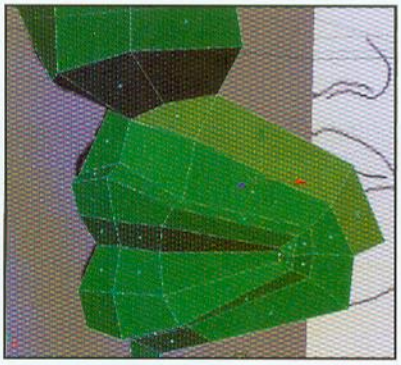
1 Create the first loop at the corner of the mouth. Here, the outer row of polygons is connected to the lower row by a single quad polygon to create a ring. Another ring is formed for the lips themselves. Finally, you're left with a triangle, which you'll have to fill in.



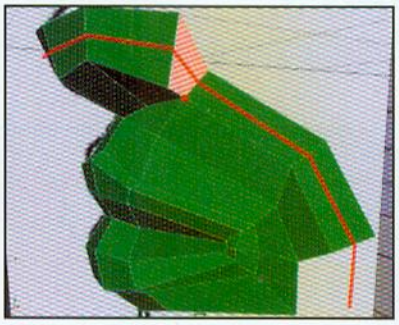
2 This isn't a problem. Use the Split Polygon tool in *Maya* to draw a cut through the polygons you've just created up to the triangle, converting it into a quad. You simply need to move the point so you can see it better.



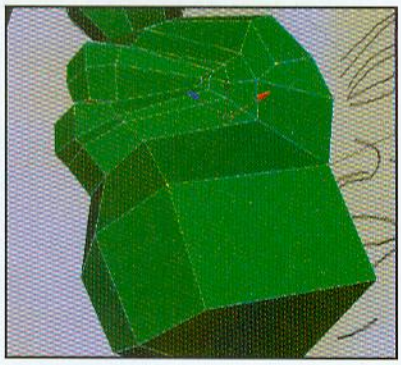
3 Next, work on the nose area. This is often a tricky part, especially in the area where the nose and cheek meet. Two of the nose edges are extruded twice here.



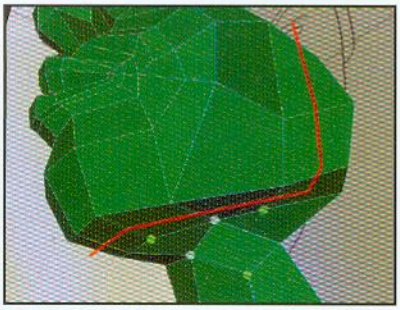
4 Join the nose edges to the upper lip by creating three extra polygons in between, and then join them to the upper lip. Notice that refinement is also continuing on the mesh – an extra loop around the lips has been added to define the edge. As long as you have closed loops, it's easy to add extra detail like this without creating triangles or n-gons.



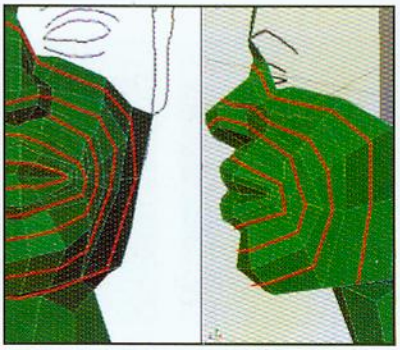
5 Extrude the edges up again creating two more polygons. Join these to the nose junction using the Append to Polygon tool in *Maya*. This is an important joint in the topology because it marks a change. Note that the highlighted point has five quads connected to it. This enables a loop (highlighted in red) to continue up over the nose while accommodating the extra polygons for the nostril area. The cage object is called FaceNose.obj on the CD.



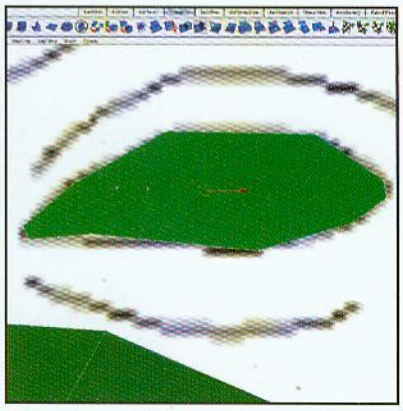
6 Fill in the chin and cheek area economically with polygons. There are ways to stop a loop or redirect it to help keep the mesh optimised. The red dots indicate vertices that are connected to only three polygons. This is another kind of junction, one that enables you to reduce the mesh – its topology is like the corner of a cube and helps to fold the mesh around corners.



7 To create a strong jawline you need to concentrate on the mesh and begin a nice one-shaped loop that runs beneath the chin and up the side of the jowls. This will eventually connect to the eyebrow region, closing the loop. Note the path of the polygons in the loop and also the five (white) and three (green) quad junctions in the mesh which have been created in the process. This is saved as ChinJaw.obj – you'll find the file on the cover CD.



8 Take a minute to examine the mesh. As you can see, there's a nice array of loops following the features and muscles of the face. However, there are one or two problem areas. The corner of the mouth will need looking at later, as will the radial edges perpendicular to the loops. These can be dealt with when we add more detail.



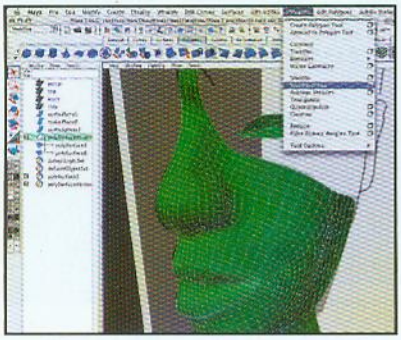
9 Use the Create Polygon tool to trace the outline of the eye opening. We've used ten points in total – notice that the corners both have two points not one.

Part 3: Adding the eye

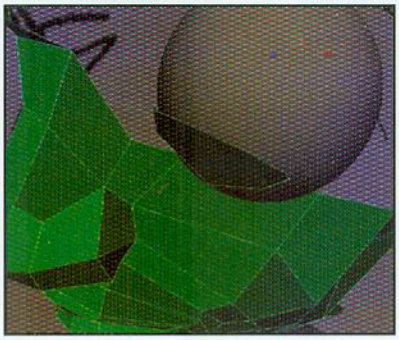
Position an eye socket, create some loops and weld it to the mesh...

Strange shading

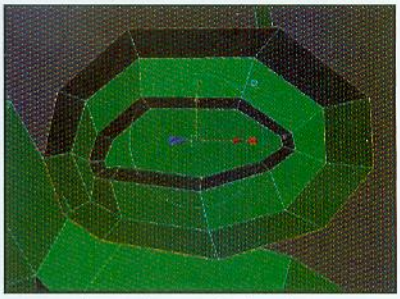
Occasionally, you might have to align the normals of the mesh if its shading suddenly looks odd. Use Edit Polygons> Normals>Set To Face to fix most problems. You can also run the Polygons>Cleanup command to fix problem geometry.



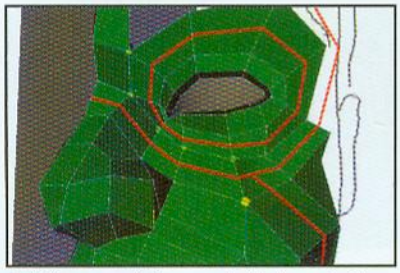
1 Before you start to combine the eye with the rest of the face, first select and delete the smoothed surface, leaving just the cage. Select the face and the eye objects then use Polygons>Combine. Reapply Smooth Proxy to the resulting mesh.



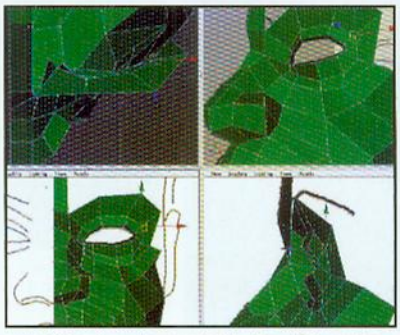
2 Add and position a sphere for the eye. This is just a stand-in to enable you to move the points of the eye polygon to the correct location – a better eyeball can be modelled later if you wish. Select and move the vertices of the flat eye polygon so they just touch the sphere.



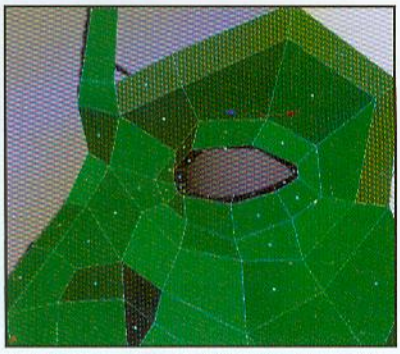
3 You then need to extrude this polygon outwards to make a ring of polygons around the eye. In some apps, such as *Maya*, you can just extrude the edges instead – both methods work well. Repeat the extrusion process until you get three loops around the eye. If using the polygon extrude method, you can now delete the central n-gons, leaving just the loops.



4 The eye socket is connected to the rest of the mesh by selecting and welding the vertices (green dots). Notice that we're creating concentric loops around the eye, plus one loop that goes over the bridge of the nose and up over the brow. In order to join these smoothly with the rest of the face, a five-point vertex junction is used (yellow dot). This creates a branching loop, which continues down around the mouth and jowl area.



5 Hiding the sphere and activating all four views, move the vertices to match the template. There are no real rules for this – you just need to practise working with a mesh and try to build up the volume of the face in 3D. Using photo references or a mirror will help with this process.



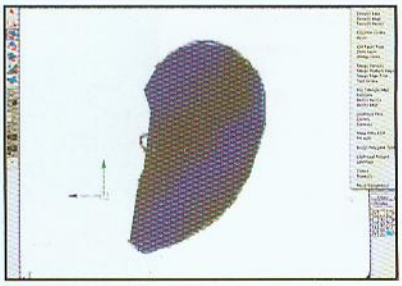
6 The nose-eye loop is finished by extruding the edges above the eye socket and welding the end points back into the rest of the face. The large thin forehead polygon has been split to supply a vertex for welding the brow polygons to.

Part 4: Building the skull

You won't need many polygons for the skull, but creating the ear is an intricate process...

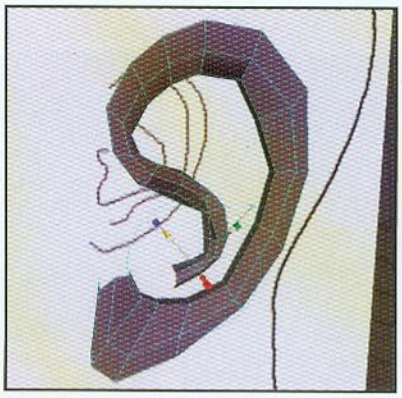
1 Now you need to extend the brow to create the skull, where the polygon density is thinned out. You need few polygons here because the skull is not as detailed as the face. The vertices are edited and the smoothed mesh is previewed. Note we've cut in an extra set of edges running from the inner edge of the eye around the temple to help sculpt this area. *Maya's* Split Polygon tool is ideal for this. The cage is called Brow.obj on the CD.

2 The rest of the skull should be completed using similar techniques. Again, pay attention to the bones, tendons and muscles under the skin, though if the character is going to have hair, you won't need to be too particular with the topology of the skull itself. As you can see here, it's by no means perfect, but should be fine for most situations.



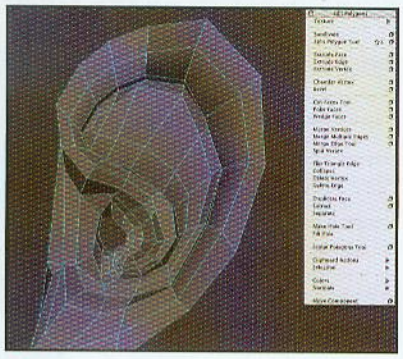
3 Model the ears as a separate object. Begin by tracing the outline of the ear in the template using the Create Polygon tool (or similar) to make a single n-gon. This is moved to the side of the head and then the polygon is extruded outwards, inset twice and then extruded back in again to create a section of polygons for the edge of the ear. The centre n-gons can then be deleted.

Part 4: Building the skull continued...

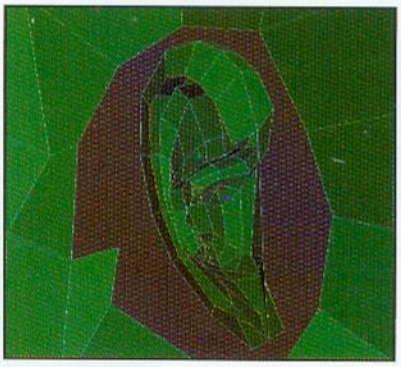


4 Delete a few of the polygons at the front of the ear, then extrude the free edge a number of times, moving and rotating it at each step. This creates the curled inner portion of the ear.

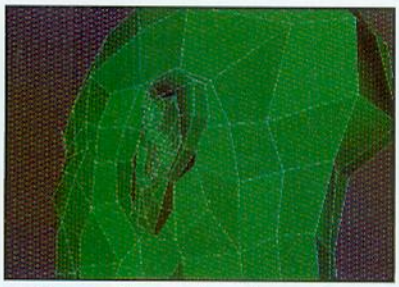
5 Close the open section inside by creating polygons between the edges, making sure they're all quads. In *Maya*, use the Append Polygon tool and click on opposite edges to create each quad – hit [y] to reactivate the tool. Select the quads and extrude them inwards, then move them slightly to create the hump inside the ear.



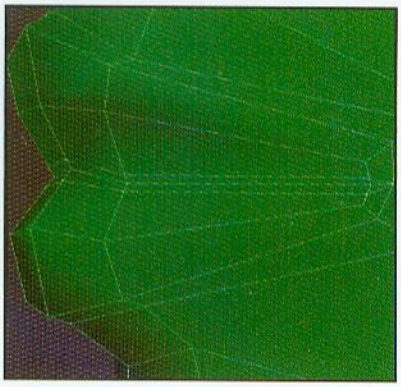
6 Using the same technique with which you began the ear, create an n-gon where you want the ear-hole to be then extrude it inwards a few times moving and rotating as you go. Next, sculpt the ear some more and create the remaining border polygons.



7 Around the back of the ear, select the outer edge and extrude inwards ready to connect it to the head. Some junctions will need to be created for this. A combination of Split Polygon tool, Append Polygon and Merge Vertices is good for constructing this part of the model.



8 By connecting one edge on the ear perimeter to the next-but-one edge, you create a quad that has the effect of reducing the resolution around the perimeter of the ear. Two or three of these should do the trick. This enables you to connect the ear to the head with less of a chance of encountering triangles. You'll probably spend quite a while on this part, because it requires patience and perseverance. If triangles are unavoidable, that's fine – this section of the head hardly moves if animated.



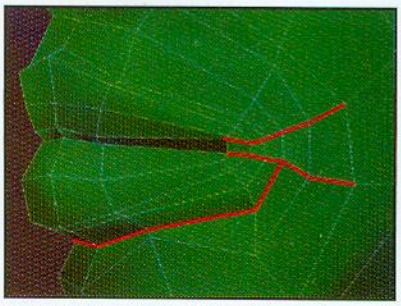
9 The final steps involve cutting in some details. *Maya*'s Split Polygon tool can be used here to add geometry to the lips. A loop is created around the centre edge – triangles are created at the corners but we'll get rid of these soon.

Part 5: Final steps

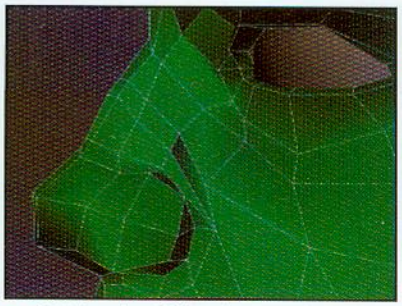
Refine the model and duplicate it to see the full effect of what you've created...

Reading meshes

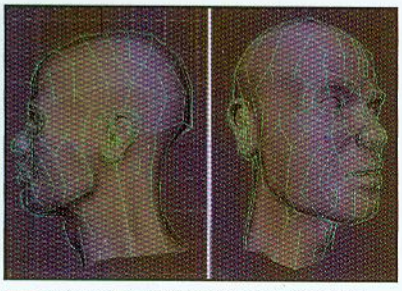
The ability to read a mesh is a skill that you'll acquire as you create more 3D models. You'll soon begin to recognise common topological patterns and gain an instinct of how to cut them or clean them up. As with most things, this skill comes only with practice.



1 Delete the centre edge, leaving a single row of quads. These can then be extruded inwards twice to create the inside of the mouth. The corners of the mouth need a bit of work to remove the triangles and create a cleaner loop of quads. Edges can be cut in under the lower lip to facilitate this and make the result much cleaner.



2 Detail can be added to the nose so that you can create the tight folds around the nostrils and cheek. As you cut in extra edges, you'll find triangles unavoidable. One trick is, if you create a triangle by slicing a quad, create another triangle straight away after it. By removing the edge between the two triangles, you leave a quad.



3 Refining the rest of the model is really just a matter of time, patience and experience. The more you do it, the better you'll become. As we've modelled only half of the face, all we need to do is select the whole model and run Polygons>Mirror, to duplicate this side of the face. Increase the Poly Merge History attribute in the polyMergeVert node to weld the seam. ca-p

SECTION **THREE:** PROJECT 2

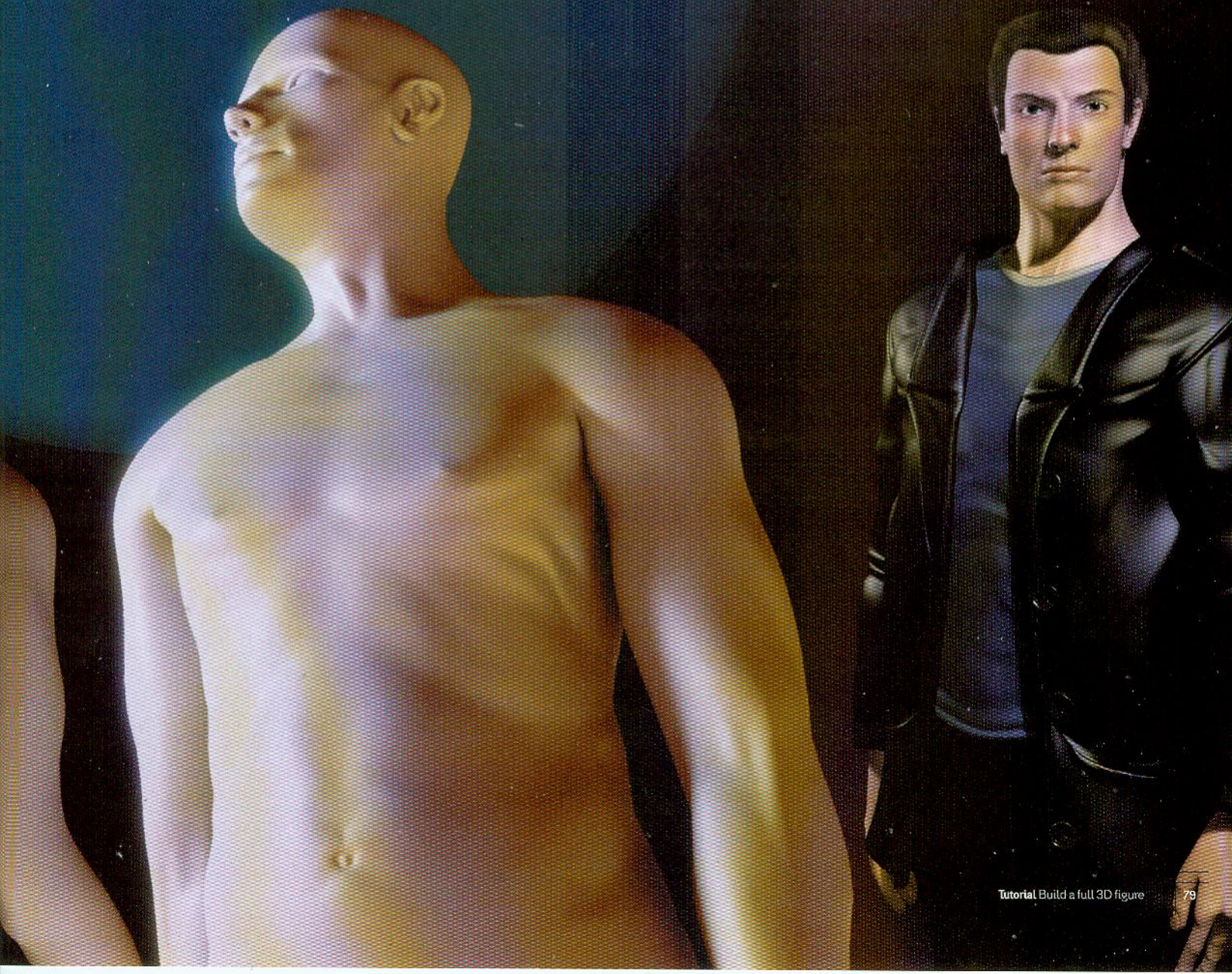
Build a full 3D figure

Create a body in *LightWave* using box-modelling techniques...

Over the following pages, we're going to show you how to create a human figure using just a few of the basic modelling tools that *LightWave* has to offer. The most challenging task here is to master human anatomy. Familiarise yourself with your subject, and practise drawing it from every angle to have a clear idea of the form you're about to model. The method we'll use is called box-modelling.

With this technique, you start by creating a simple box and adding detail to it using the Smoothshift, Bandsaw, Knife and Bevel tools. Then you can use Spinquad to ensure that polygons are following the natural path of the muscles. This is a fast and effective way of modelling organic objects. Other advantages of this process are that it produces geometry that has only quad polygons, and the rendered results look good and deform well – as you can see from the figures on this page.

Expertise provided by Veli-Antti Rautiola. Veli-Antti has worked as a professional animator in Finland since 1998 and has always had a passion for creating and animating characters. Some of his images and animations can be found at **[w]** www.anttirautiola.com and he can be contacted at **[e]** antti.rautiola@welho.com



Part 1: Basic geometry

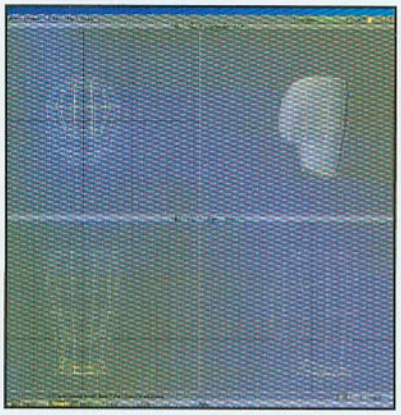
Start modelling the head of your figure from a simple box shape in *LightWave*...

Before you start

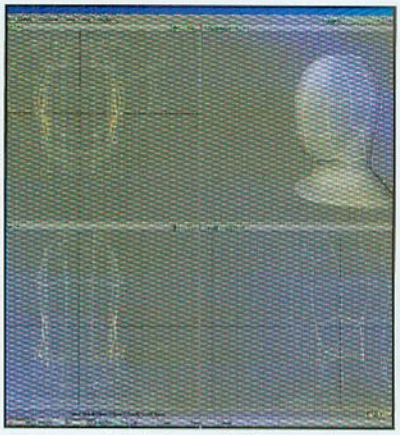
It's a good idea to set up hotkeys for the basic modelling tools: Knife tool, Smoothshift, Spinquad, Bandsaw and Drag tool. You should also search through all the available human anatomy material and books you can find. There's a great book by Andrew Loomis called *Figure Drawing For All It's Worth*. You may also want to use backdrop images to get the body proportions correct.

Geometry first

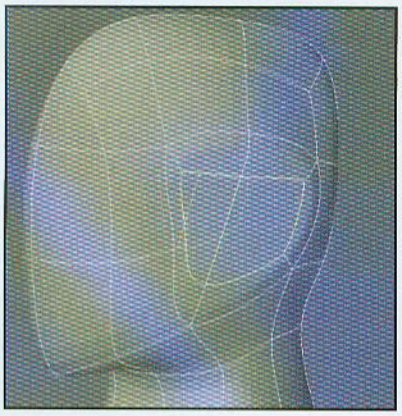
Don't worry if the head doesn't look perfect straight away – it's essential that the geometry is constructed properly first. You can fix the proportions later on by moving parts of the head to their correct places. For example, you can select the whole ear and use the Stretch tool or Move tool to adjust the polygons to their proper locations.



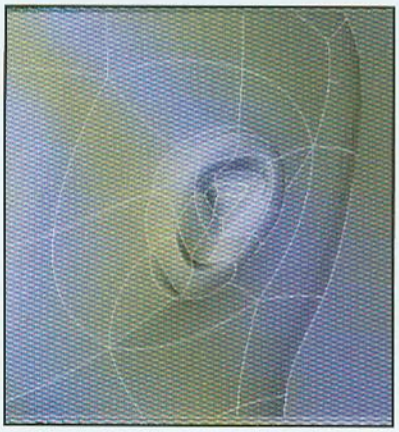
1 Turn on the symmetry function and create a cube. Use the Knife tool to subdivide it. Select some of the polygons from the bottom. Then use Smoothshift a few times to create a neck, and use the Drag tool to move points around.



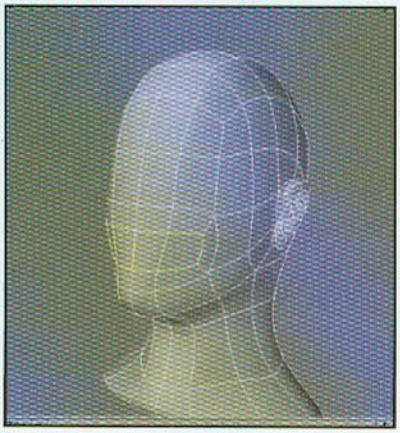
2 It's essential that you make the geometry follow the form of real muscles. Use Spinquad on the jaw polygons. Select the Drag tool and move the points to get the right form.



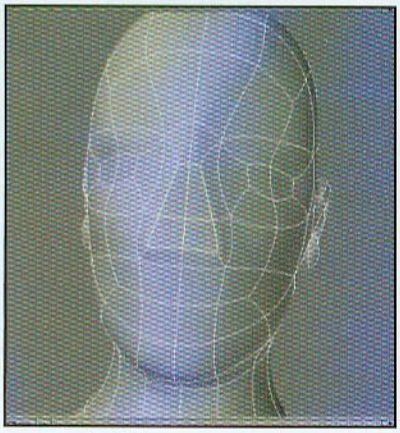
3 Create the ear by smoothshifting polygons from the middle of the head. Use the Drag tool to form the shape to look like an ear. Everyone's ears are different, so look at plenty of reference material before creating them in *LightWave*.



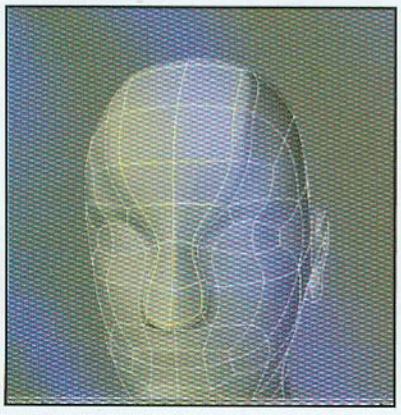
4 Continue adding detail with the Smoothshift tool. Use Spinquad on the edges of smoothshifted polygons to make the seams look more organic.



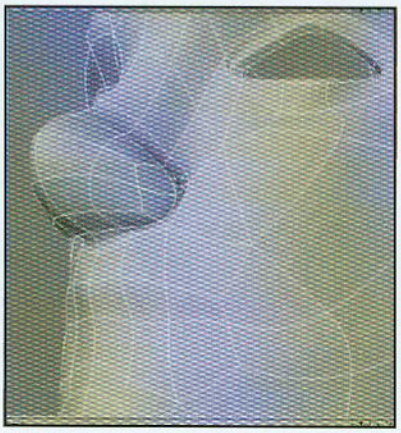
5 Use the Knife tool to split the whole head vertically from the front view. Smoothshift the face and then the mouth area. Use Spinquad to turn polygons on the edges of the mouth.



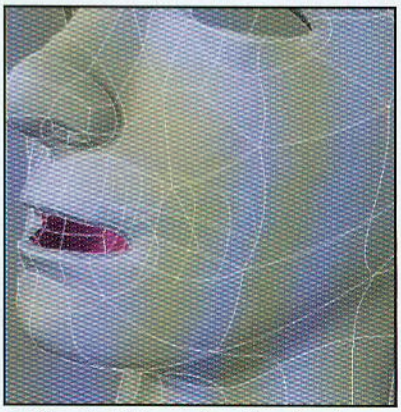
6 Smoothshift the eyes, nose and mouth polygons again to add more detail, then use the Stretch and Drag tools to shape the polygons. Remember to save your work regularly.



7 This time, select the whole forehead area and nose and put more detail into this section. The most important thing is to get the geometry to go in the right direction with Spinquad and then shape it using the Drag tool.



8 Add more detail to the eyes and the nose and use Spinquad on the polygons to achieve better forms. If you're uncertain of the form, look into a mirror and use your own features as a reference.



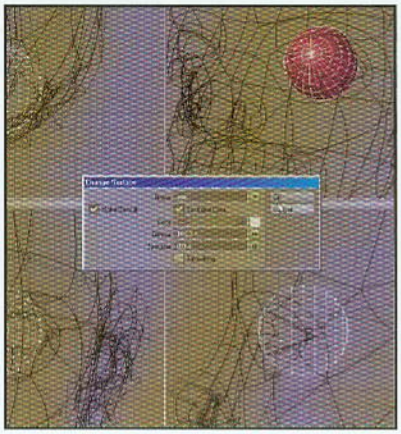
9 Smoothshift the mouth and the nose a few times to make holes. Use the Stretch tool to shape the polygons. You can assign a different surface for the mouth so you can easily select it and hide it in the future.

Part 2: Adding detail

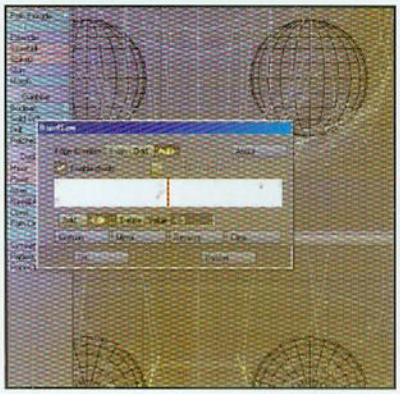
You now need to add detail to the face, using a new tool called the Bandsaw...

Avoid triangles

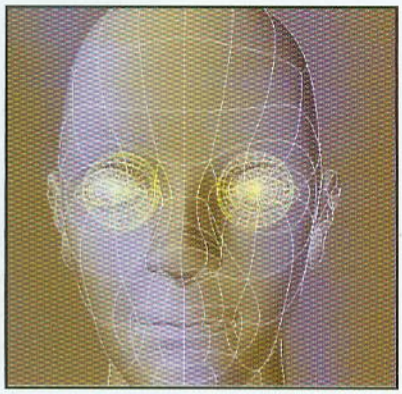
The tools used in this tutorial should prevent you ending up with triangled polygons. You should aim to avoid triangles, because they have a tendency to produce artefacts when they're rendered.



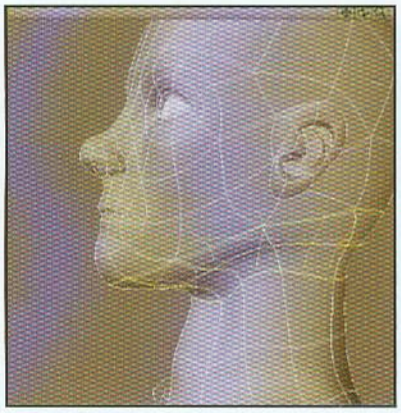
1 Select another layer and create a ball object. You can use the z-axis on the numeric settings and then mirror it on the other side. Use this as a reference to mould the eye sockets.



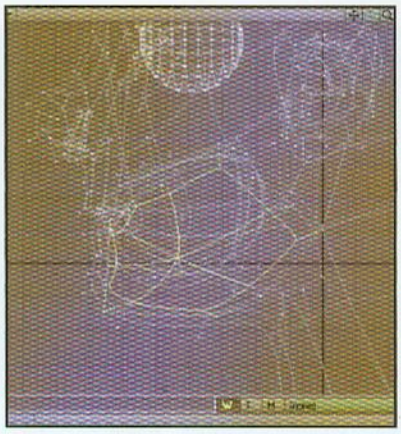
2 Drag the points of the eye socket with the Drag tool according to the background layer. Select two polygons going round the eye, and use the Bandsaw with Enable Divide selected. Do exactly the same thing to the opposite side to keep the object symmetrical.



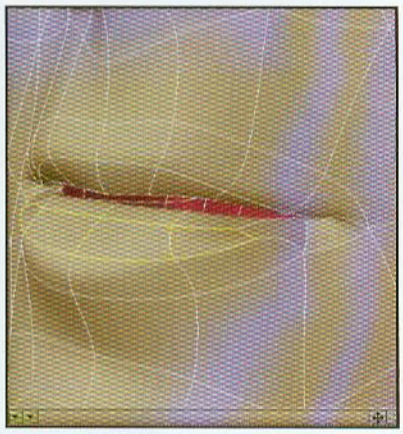
3 Select the eye and the eye socket polygons from the background layer with the Lasso tool and move them together to get the proportions correct. You can also select other parts of the head and move, rotate or scale them to get create better proportions.



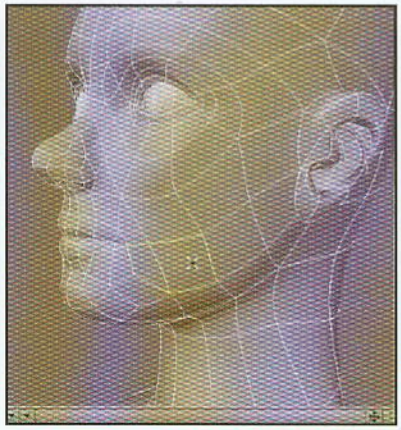
4 Use the Bandsaw to get more detail in the neck area. Just keep adding detail where you think you're going to need it. Use Spinquad on the polygons under the ear to make the jaw polygons naturally turn towards it.



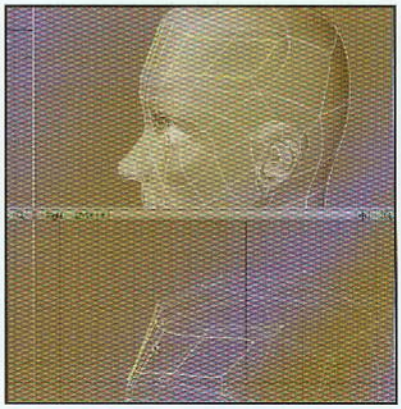
5 By smoothshifting the whole jaw you can increase the detail in this area. When you've added enough extra detail, use the Stretch and Drag tools to adjust the polygons.



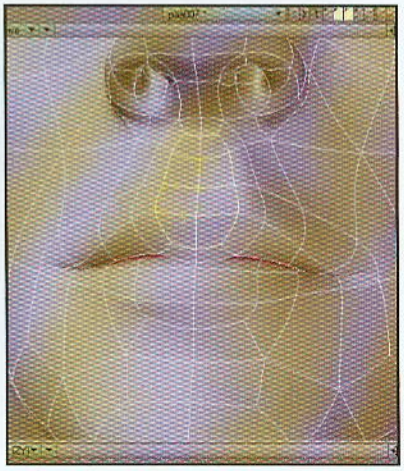
6 Look into a mirror to remind yourself how your lips are formed, and then smoothshift the lower lip. Use Spinquad on the edges of the lips to make the seams look better.



7 Use Spinquad and turn the edges of smoothshifted polygons to clean up the mesh. Look for the reference images of face muscles to see that the polygons are following their natural path.

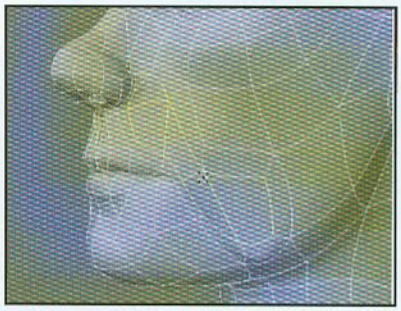


8 Add more detail on the forehead and spinquad the edges. You could use the Smoothshift tool to add some wrinkles too, but it's usually best to leave this sort of detail until after you've got the basic head shape correct.

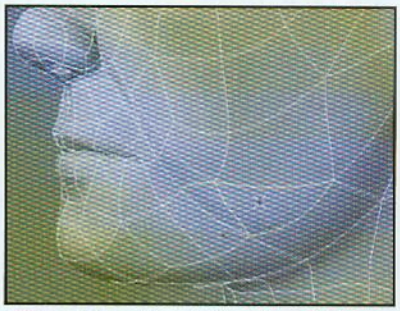


9 Smoothshift the upper lip and use the Drag tool to perfect the shape.

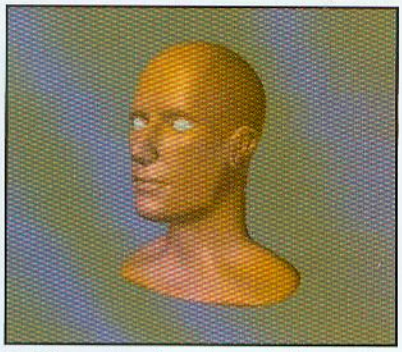
Part 2: Adding detail continued...



10 Add the line of the cheek muscle. This comes down from the nose and blends into the lower part of the cheek. Depending on the type of character you're trying to create, you can emphasise these types of facial features later.



11 Use Spinquad to make the polygons follow the path of the real muscles. Spinquad also enables you to weld polygons and reduce unwanted polygons. Now's a good time to save your work if you haven't done so recently.



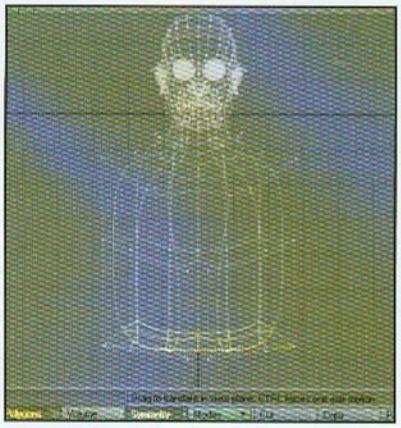
12 Change the surface colour and add a smooth specular highlight to enable you to clearly see if the geometry has any artefacts.

Part 3: Creating the body

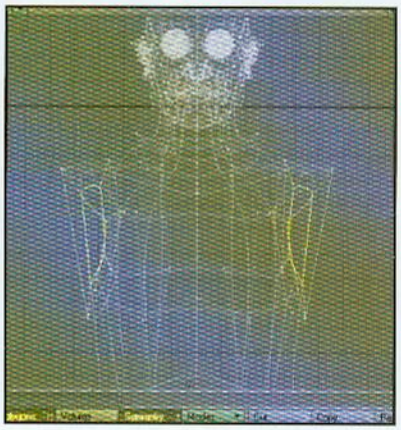
You can use the same tools and techniques here that you used to create the head...

Do your research

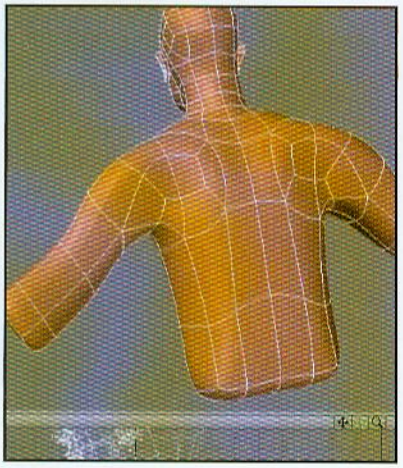
Find as much reference material as possible that shows you the skeletal and muscular structure of the human body. Although you're going to create only the visible parts of the body, it's important that you understand the underlying structure which gives form to the skin.



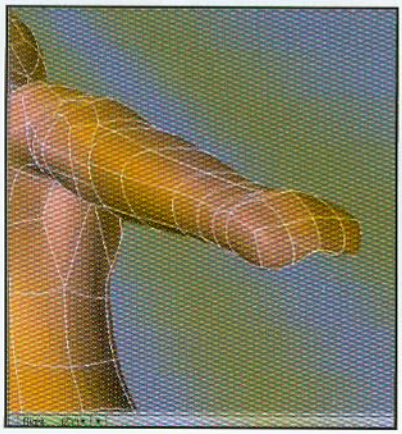
1 Select the lower polygons of the neck and smoothshift them. Move them downwards and stretch them. Do this a few times to achieve a basic shape for the torso.



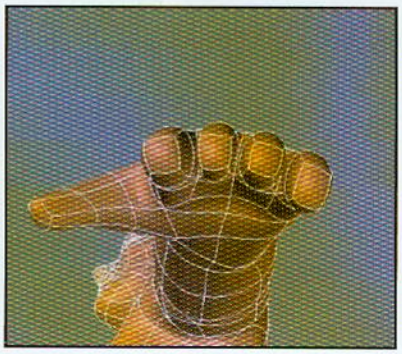
2 Select the polygons and smoothshift them to create the arms. Use the Drag tool to shape the model. You can always add more detail later on so don't worry if it doesn't look perfect straight away.



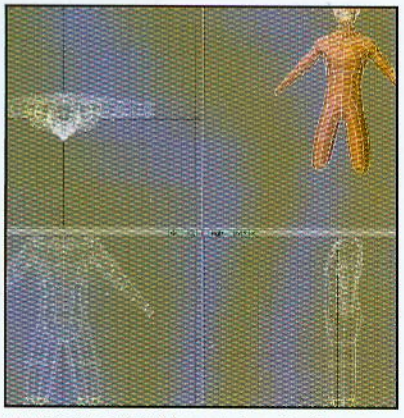
3 Continue to add detail and use Spinquad to blend the seams.



4 Create the rest of the arm using smoothshift techniques. Then use the Stretch tool and Drag tool to shape it.



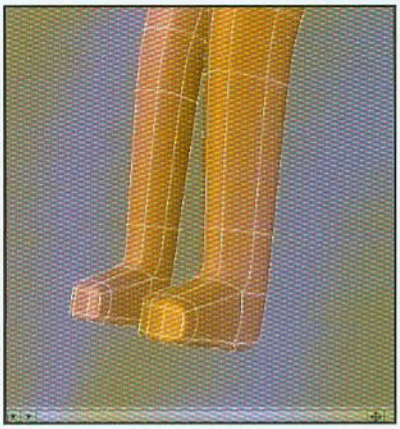
5 Smoothshift the thumb. Then selected four polygons at the end of the hand and use the Bevel tool a number of times to create the rest of the fingers at the same time. You can add detail to fingers with the Smoothshift and Bandsaw tools. Use your own hand as reference material when adding detail to the digits.



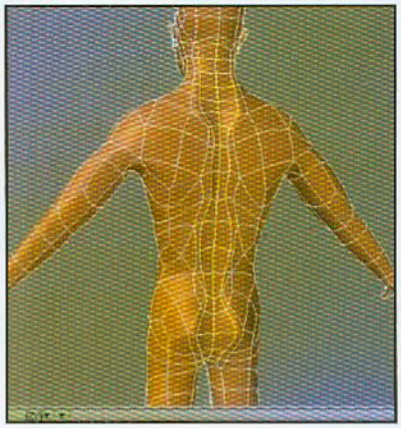
6 Use Smoothshift to create legs. Don't worry about proportions yet – you should create the details first and worry about stretching and moving body parts to get the proportions correct later.

Male or female

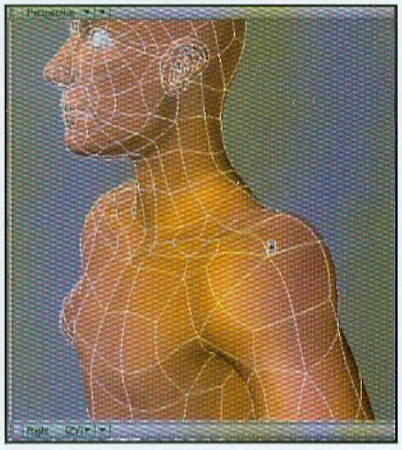
As you'll no doubt be aware, there are many important anatomical differences between men and women. You'll need to study these variations in great detail before attempting to build a 3D body.



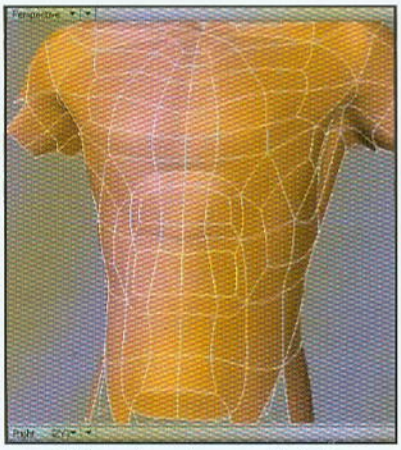
7 From now on, it's all about adding detail. Create the toes in the same way as you made the fingers earlier. Use either Smoothshift or Bevel to add them. Again, it's a good idea to look at your own feet for reference.



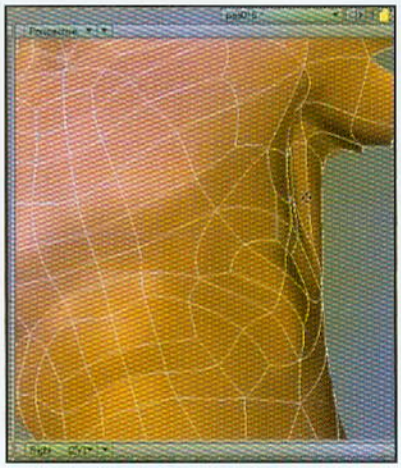
8 Smoothshift some detail for the spine. Look carefully at reference materials for the back muscles and emphasise areas to suit your character. Use Spinquad to make the edges of the muscles look more organic.



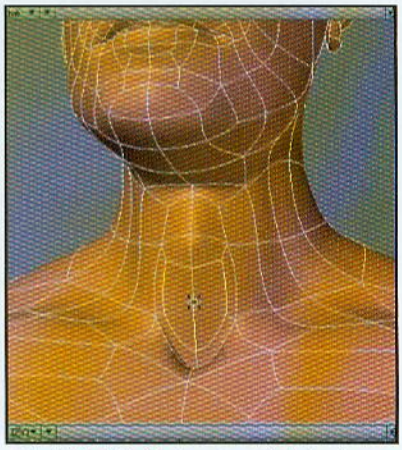
9 Add detail for the shoulder. The shoulder is a place where many muscles meet and interact, but you should also be aware of the bone structure in this area of the body if you want it to look right.



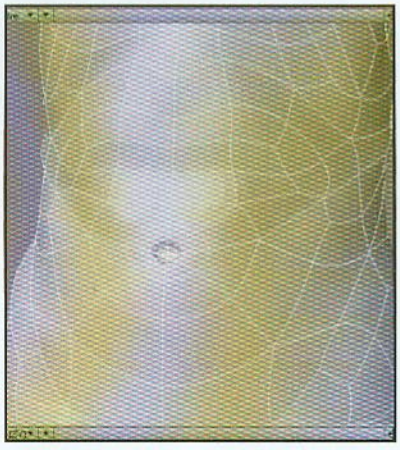
10 Add stomach muscles appropriate to the gender, nature and fitness of your character. Don't be tempted to give everyone a six-pack just because that's what we all aspire to!



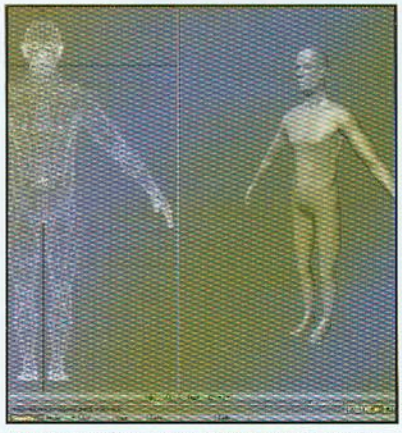
11 The next part of the body that needs smoothshifting is the ribs. Use Spinquad to rotate the polygons correctly.



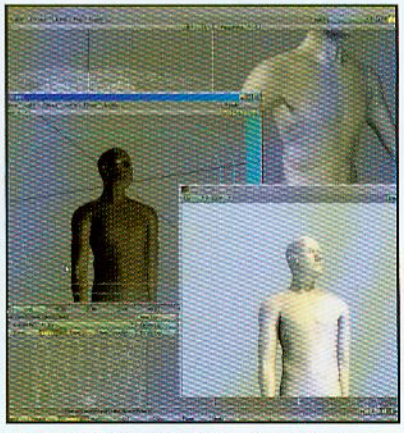
12 Add detail to the throat area. Look at reference images or look into a mirror for help. Be aware of anatomical differences between male and female figures in this area of the body.



13 Add a navel. Women's navels are usually slightly below the waistline while men's bellybuttons are normally on the same level or just above the waistline.



14 Now check over the whole figure and correct any proportions necessary. If the legs are too short or the head is too big, just select the polygons and use the Move tool or Scale tool to get the proportions right.



15 Take a few test renders to see if there are any artefacts in the geometry and continue to add detail until you're happy with the model. Make the model as final as possible before texturing to avoid mapping difficulties. ca•p

Creating lifelike hair

We show you how to model a head of realistic 3D hair in *Cinema 4D* and *Shave and a Haircut*...

Realistic hair has always been hard for a computer to simulate and despite huge advances in software, it's still a complicated business. Feature films like *Monsters Inc.* and *Brother Bear* demonstrate what's possible these days, but who's got two years to spend on perfecting the technique? *Shave and a Haircut* is a powerful 3D plug-in that has a cult-following among animators. Developed by Joe Alter, this rendering system for creating all types of fur and hair plugs right into *Cinema 4D* or *Maya* and has been used in films such as *X-Men 2*.

While a plug-in such as *Shave and a Haircut* makes the hair-creating process a lot easier, the styling and rendering of realistic hair still remains an involved task for you and your computer. Luckily, we have some handy guidelines to help you follow this process, but we have to assume a certain degree of experience with *Cinema 4D*'s most basic tasks, as well as some basic knowledge of the Shave Editor. We're using *Cinema 4D R8.5* and *Shave 2.5*, though most things work similarly in any version.

So, load in your favourite character model, find the head mesh, and let's start grooming...

To find out more about *Shave and a Haircut* or *Cinema 4D*, visit [w] www.maxon.net. The character used in this tutorial is Fred, who has been created by Dutch animation studio Happy Ship. Fred is not provided on the CD due to copyright issues, but you can use the characters Meg and Otto which come with *Cinema 4D*.

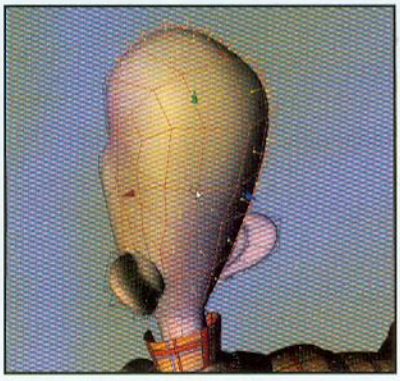
Expertise provided by Bastiaan Hooimeijer, also known as Naarn. Naarn is an animator and character designer at new animation studio Happy Ship, from the cold northern regions of Groningen, the Netherlands. [w] www.happyship.com

Part 1: Preparing the model

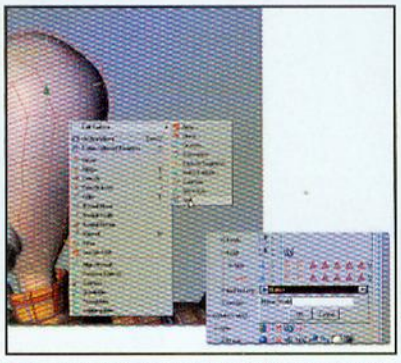
You need hair before you can style it...

Shave tags

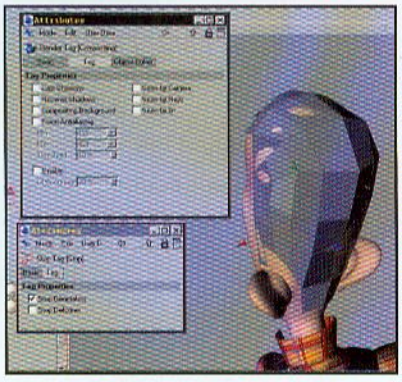
In Step 3 on the right, you need to use the Compositing tag and not the object's small 'visibility dots', because you still want the hair itself to be visible. Since *Shave* is using its own renderer, it'll ignore the *Cinema 4D*-specific settings of the Compositing tag.



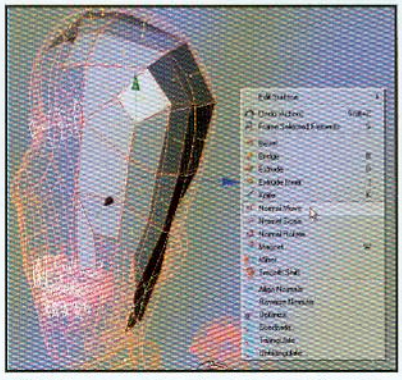
1 Select the polygons of your character that should grow hair. Be generous with your selection because it'll be easier to remove them than to create extra polygons later on.



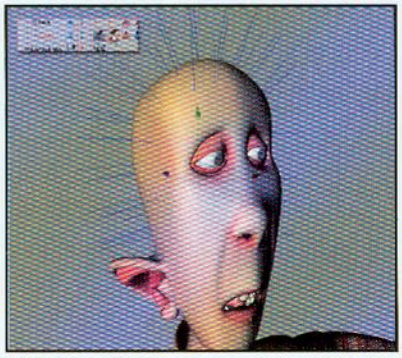
2 Using the Context menu (right mouse button, or the [v] key), select Edit Surface>Split. A new polygon object will be created from your selection, which will be the scalp. Select it in the Object Manager and rename it.



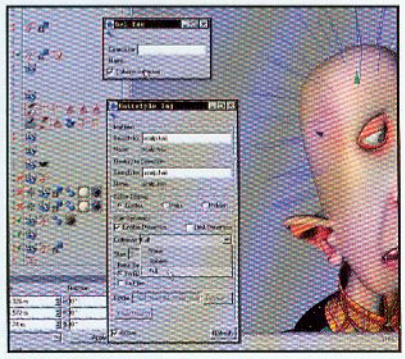
3 Give the scalp a Stop tag so the HyperNurb will ignore it. Give it a Compositing tag with all options turned off to hide it from the renderer. Vertex Maps excepted, you can safely remove any other tag.



4 Using your preferred modelling tools (try the Normal Move tool in polygon mode) remodel the scalp slightly so it just about disappears below the skin. Don't bury it too deep.



5 With all polygons selected, use *Shave*'s Grow Hair function. *Cinema 4D* automatically creates a Texture tag with a Shave material named after the mesh, a Shave Hairstyle tag, and a Polygon Selection tag.



6 Double-click the Shave Hairstyle tag and set Collisions to Full. Add a Gel tag to the head object (with *Shave*'s Add Gel Tag function), double-click it and turn on Collision Detection. You're now ready to start styling.

Part 2: Styling the hair

It's time to get involved with those tantalising blue lines...

Head-on collisions

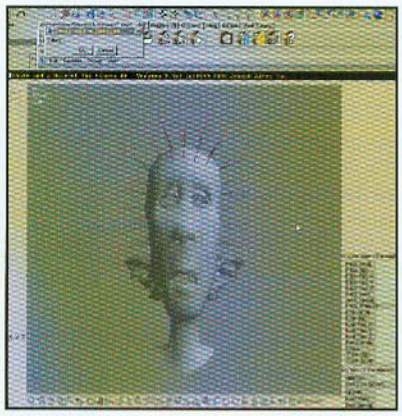
If you have other objects that you need to see inside the Shave Editor, like headgear, or a collar, simply add a Gel Tag to them as well. You'll probably want to leave collisions off for these reference objects – they can be helpful for styling, but they can also be in the way. If your hairguides start jumping around, turn off Collision Detection in the Shave Editor.

Styling tools

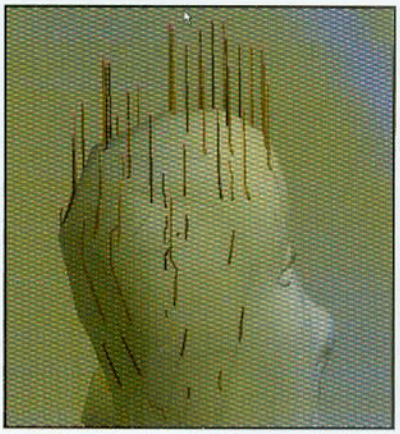
Using the Puff Roots tool is very good for making the roots stick out, which is important to prevent rendering artefacts. The Clump tool can be used on any part of the hair, not just the tips. And in case you inadvertently 'lose' some hairs because you've scaled them down too much, use the Pop Zero button.

Display options

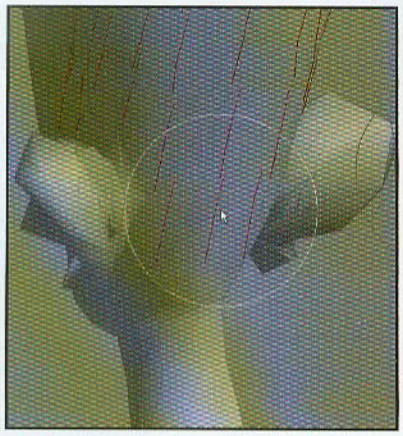
You can use the [d] key to flick through display types – possibly you need to look beneath the skin now and then. Also, if you want to concentrate on just the selected group of guides, press [i], [-], [i] to hide the other guides. Press [\] (backslash) to show all hidden hairs again.



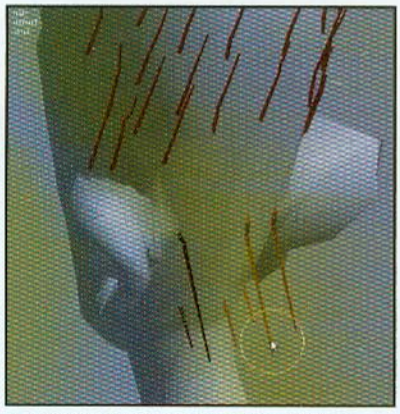
1 Thanks to the Collision Detection, you can style the hair without it intersecting with the head. With the Shave Style Tag selected, click on *Shave's* Edit Hair button. *Cinema 4D* will freeze, and the Shave Editor will come up.



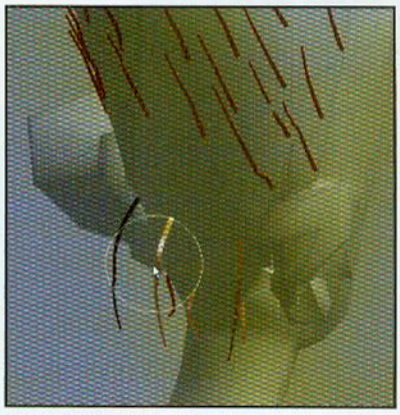
2 The first thing you need to do is move all hair out of the way. It's already selected, so simply click the right mouse button in the viewport and move your mouse straight up.



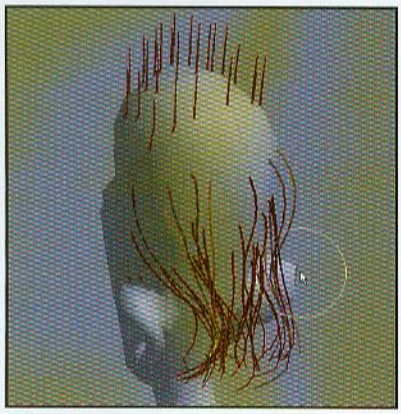
3 Enable Brush Mode and Select Whole Strand. Press [i] to invert the selection, which in this case deselects all. Using the Shift and Ctrl keys, select the bottom-most row of hairguides.



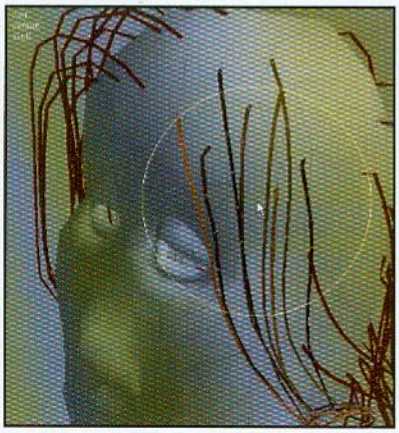
4 Once a decent row of hairguides has been selected, use the [b] key to define a brush size, and brush the hairguides downwards with the right mouse button. Switch to the Scale tool if you need to change their length.



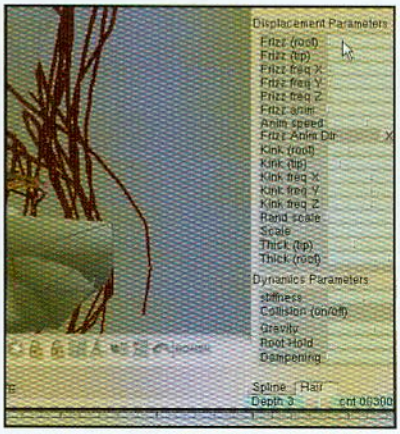
5 Use different brush sizes to model the guides into form. Also try brushing different parts of the hairguides, and other tools like Clump, to make more refined adjustments. Once you're fairly satisfied, select the next row of hairguides.



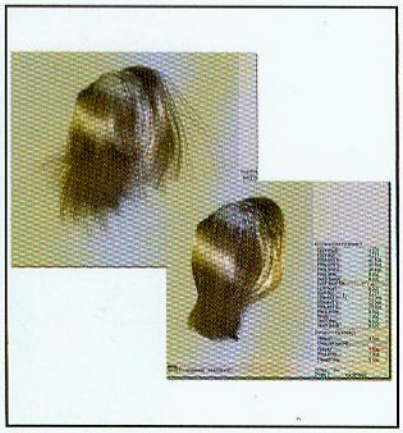
6 Work your way through the hairguides like this, bottom to top, each time selecting a new cluster of hair and brushing them down and into shape. Make sure the roots stick out of the surface instead of following it.



7 If there's a lock of hair that needs to be separate from the main volume, press the [s] key to split it off. Conversely, you can use the [m] key to merge a group of guides back together.



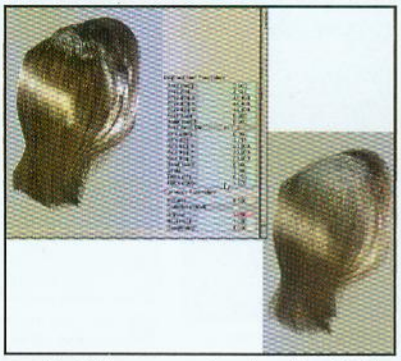
8 When you're satisfied with the shape of the guides, tweak the style of the individual hairs with the sliders to the right. The viewport will respond in real time with an illustration of the effect.



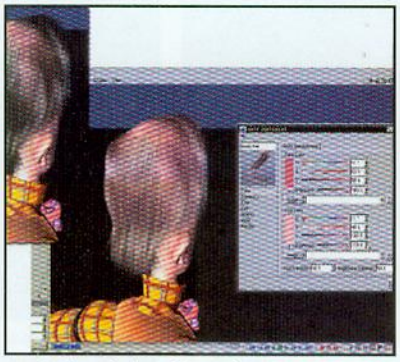
9 Fred takes real good care of his hair, so he needs the Frizz and Kink parameters to be quite small. Use *Shave's* Preview function for a rudimentary preview of the overall effect.

View your style

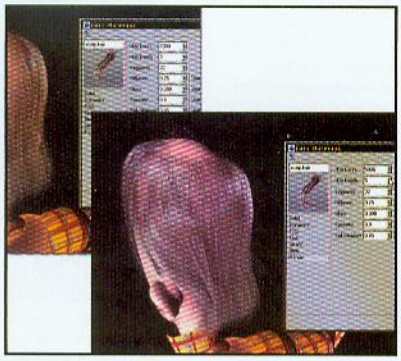
While tweaking the hair settings inside *Cinema 4D*, you may want to see the hair instead of just the guides. Do this by selecting Hair inside the Shave Hairstyle tag. You can speed up editor feedback by setting the viewport LOD (Level of Detail) to Low, and speed up rendering by disabling Use Render LOD. But remember to turn it back on when you're defining the haircount.



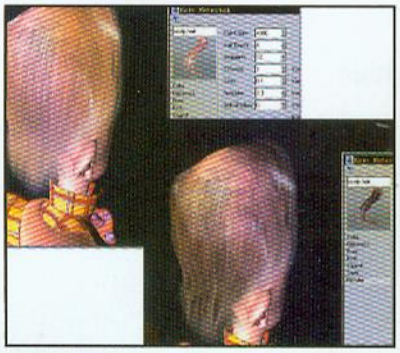
10 The Thickness parameters play a big role in the overall appearance of the hair. Bear in mind, though, that for very thin individual hairs, you're going to have to increase their overall count in Step 12 on the right.



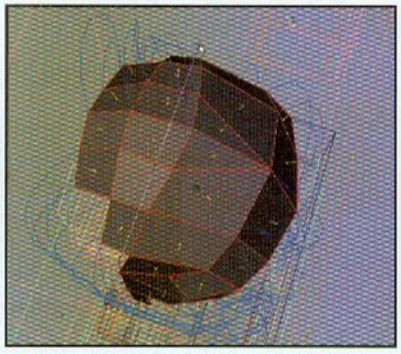
11 Let's get back to *Cinema* for some more tweaks. Click on Done and OK, and double-click the Hair Material to set the hair colours. Fred's hair has a pinkish hue, with darker roots and yellowish Mutant Hairs.



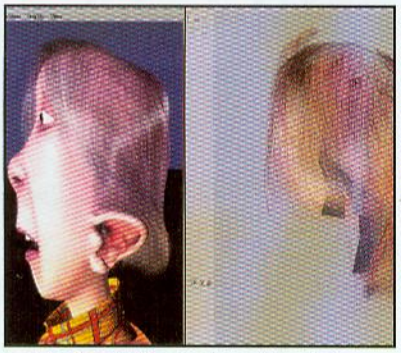
12 On the Render page, you need to define the amount of hair you want. Just some more than the default is often enough. Keep Hair Depth set to at least 3, but increase it if you need softer, more transparent hair.



13 Still on the Render page, you should make the last tweaks to the actual shading of the hair with the remaining settings. The parameters mostly speak for themselves. The Self-Shadow parameter can be used to make hair more solid.



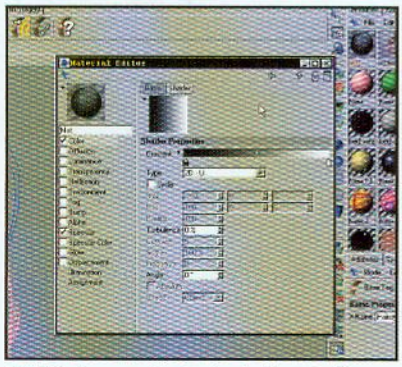
14 Don't forget you can still remodel the scalp object. This is a great way to fine-tune the placement of the hairguides. You can use the Knife tool to add more polygons, and thus hairguides, for something like a parting.



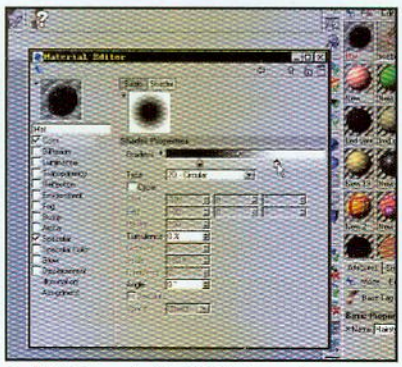
15 You're probably going to want to switch between *Cinema 4D* and the Shave Editor to further refine the hairstyle. The Preview function is now pretty close to the final rendering, so use it to your advantage.

Part 3: Using a cut-length map

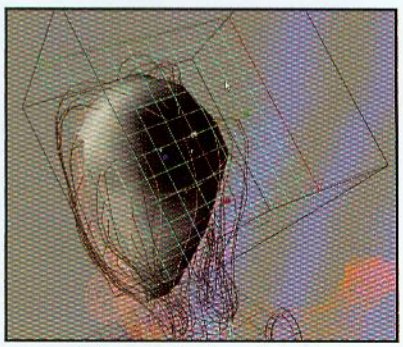
Or how to give Fred a bald spot...



1 Create a new standard material, and add a gradient shader to the colour channel. We're going to use this material as a proxy for where the model should have his bald spot.



2 Set the gradient to 2D Circular, and make sure it goes from black in the centre to white on the outside. That way the hair in the centre of the gradient will be the shortest.

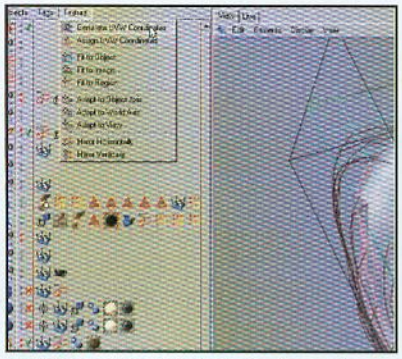


3 Apply the material to the scalpel and, with mapping set to Flat, use the Texture Axis tool to position the bald spot. Don't worry about it tiling over the rest of your mesh, because only the central gradient matters.

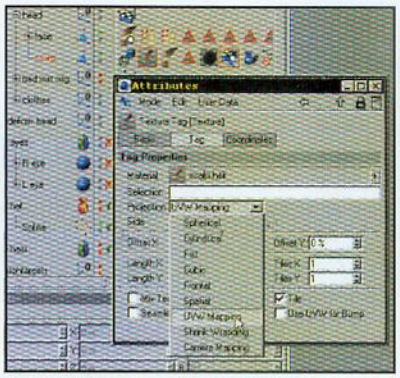
Part 3: Using a cut-length map continued...

Readjusting the bald spot

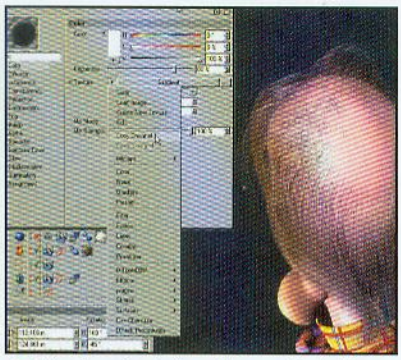
Chance is, the bald spot isn't placed correctly at the first go. To readjust the gradient's placement, simply remove the UVW tag, and set the proxy Material tag's mapping back to Flat. Reposition the gradient with the Texture Axis tool, and just take it from Step 4 next. You can skip copying the gradient shader if you don't change it.



4 Once you're satisfied with the placement, call the 'Generate UV coordinates' function from the Texture menu in the Object Manager. A new UVW tag will be generated and placed on the scalp object.



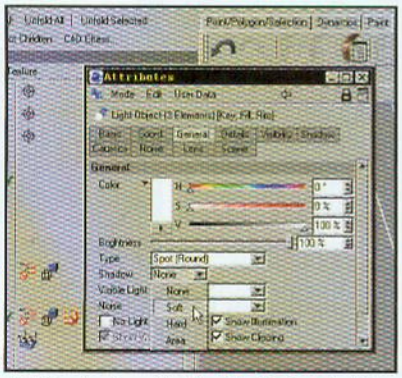
5 If it isn't already selected, set the mapping of the Shave Material tag to UVW Mapping. It will reference the first UVW tag it finds to the right of itself, so make sure it's the one you just created.



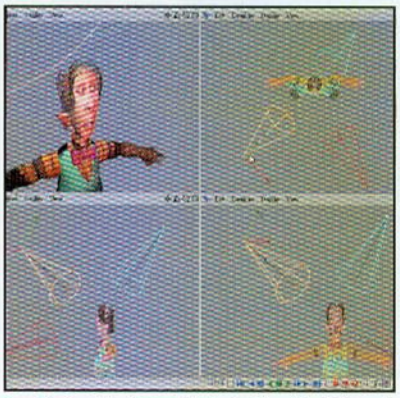
6 Use Copy Shader from the proxy Material's Channel menu. Next, go to the Style page of the Shave Material, and place the gradient in the 'Cut Length Map' channel with the Paste Shader function, and render the result.

Part 4: Lighting and rendering

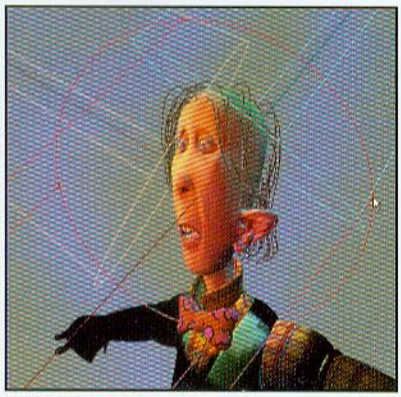
Attractive lighting does half the job of creating great-looking hair...



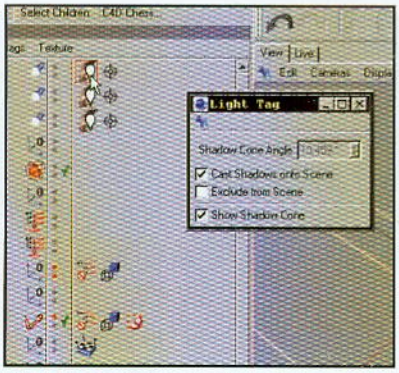
1 Create a Target Light, set its Shadows to Soft, and duplicate it twice by Cmd/Ctrl-dragging it in the Object Manager. You now have three spotlights all pointing at a target Null. Rename them 'Key', 'Fill' and 'Rim'.



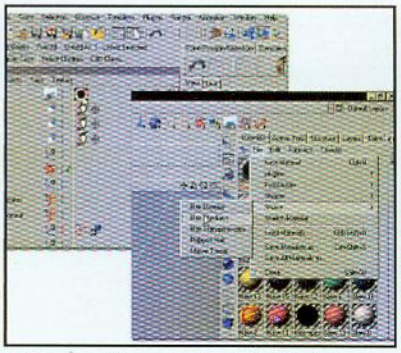
2 Colour the lights slightly. Position the lights and the target so the Key light is the main lightsource, the Fill light fills in remaining dark parts, and the Rim light creates a nice 'silver lining'.



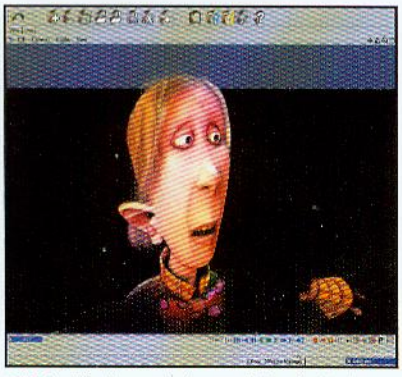
3 Make sure that all three lightcones are neatly fitting the head and hair, so that you take full advantage of *Shave*'s shadow map generation. You can scale up the lights to make this easier to see.



4 With one of the spotlights selected, use *Shave*'s 'Add Light Tag' function to make it actually illuminate the hair. Cmd/Ctrl-drag the tag this creates to the other two lights.



5 To make *Shave* actually calculate the hair shadows, you need to add an Environment object to the scene. Create a Shave Shadow Material (File>Shave>Shadow in the Material Manager) and drop it onto the Environment object.

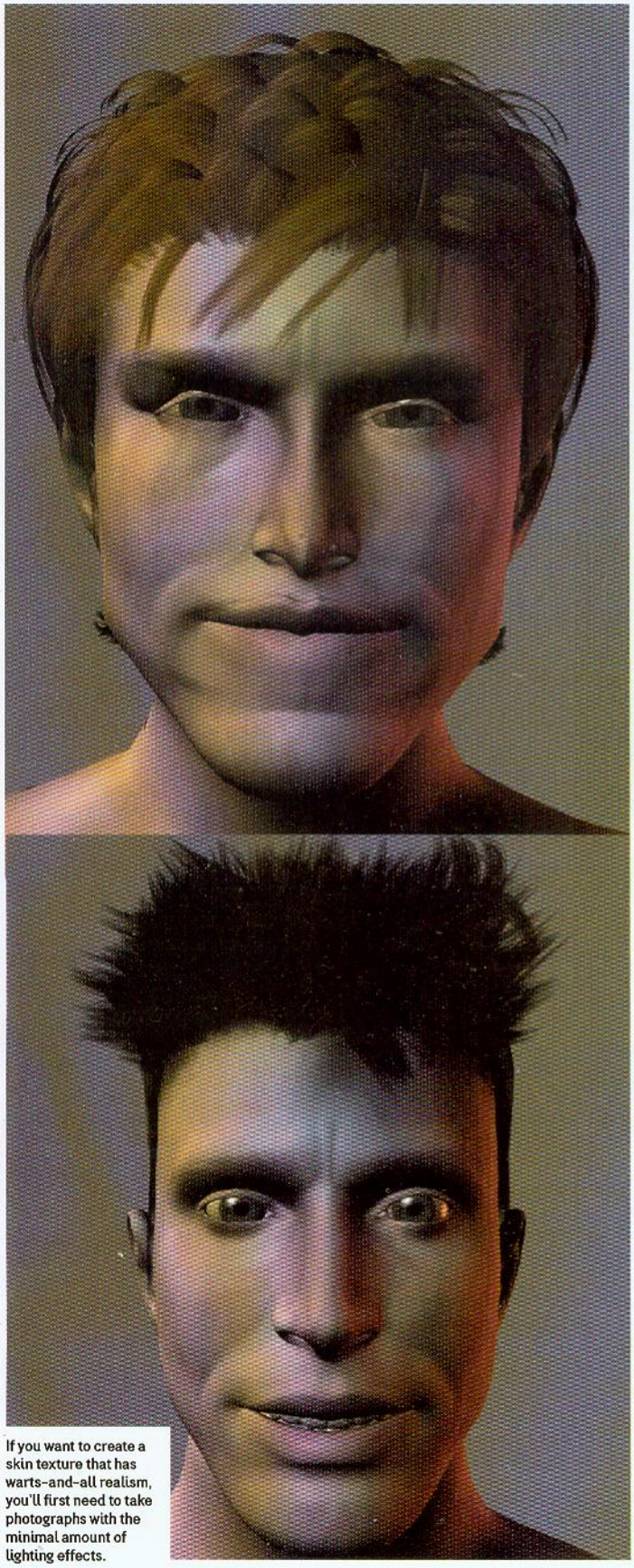


6 And finally, render the result. Your hair is in place and lit attractively. Undoubtedly, you'll want to tweak the setup to make it really work, but that's up to you. Experiment all you like. **ca•p**

SECTION **THREE:** PROJECT 4

Creating skin textures in Poser

In the first of two short tutorials, we look at how to create textures for your figures...



If you want to create a skin texture that has warts-and-all realism, you'll first need to take photographs with the minimal amount of lighting effects.

Poser is a unique 3D figure-modelling tool by Curious Labs that appeals to enthusiasts and professionals alike. You can import your own models or buy custom-made models online then add skin, hair and other features to your heart's content. Creating a texture (and custom morphs) for your *Poser* figure is a great way to personalise your scenes. If your maps are any good, you can make some money by selling them online. In *Poser 5*, you can create procedural textures, but they aren't ideal for adding to figures because they lack the details (warts, moles, pores) that make a real person's skin unique. Therefore, in this tutorial we'll be concentrating on how to create a bitmapped texture using real photos. This technique also applies to *Poser 4*, *Poser Pro Pack* and *Poser 5*.

The essence of creating a human skin texture is similar whether you're making it for use in *3ds max*, *Poser*, or any other program that supports textures, but there are some special considerations for using DAZ's characters. The most well-known of these figures are Michael, Victoria and Stephanie, because they have quirks not found in standard *Poser* characters.

Unique textures

These characters use UV mapping, which essentially wraps a texture around the model, so that every part of the model receives a unique area of the bitmap. This enables you to create detailed maps that show all the eccentricities of human flesh. One of the advantages of UV mapping is that it allows for bitmaps of any size. So if your figure will be primarily seen at a distance too great to detect individual skin details, it makes no sense to create a resource-gobbling 4000x4000 pixel body texture when a 1500x1500 texture will look just as convincing, render quicker and will leave more memory for you to make other scene elements.

Before you can start creating your textures, you'll need decent photographs of your model, and before you can shoot the pics, you'll need to know which parts of the model will require particular attention when taking the photographs. The photography is one of the most crucial stages, because poor photography leaves you with far too much post-work to do. What you should be trying to achieve is photographs with the minimal amount of shadowing or lighting effects. There's no point creating textures that are pre-lit, when the models they are attached to will be interacting with *Poser's* lights in many different ways.

The DAZ figures have separate texture maps for the head and body. This enables you to create maps of different resolutions for each part, perhaps concentrating on creating a high-resolution head map for close-ups.

Strike a Pose

When you've created your texture, you'll want an easy way to apply it to your models. Of course, you can always load the texture manually each time you want to use it, but a far better way is to create a MAT Pose file. A MAT Pose is a special type of Pose file that was invented by members of the 3D community some time ago. It consists of two or three files, the first of which is the PNG file that contains the thumbnail image. With *Pro Pack* and *Poser 5*, this file is optional because the image is included in the RSR file. The RSR is the resource file. The third file is the .PZ2 file, which contains information about the location and setting of all parts in a pose. However, it was discovered that this file also accepted values about the textures applied to a figure or element. You can edit these files using a text editor, but we'll be using a free program called *MAT Pose Edit*. So, from model to texture, the process is much easier than you might think. All it needs is time and patience.

The screenshots for this tutorial can be found on the cover CD in the Software\Tutorials\In The Mag\Poser1 folder.

Expertise provided by Mat Broomfield. You can contact Mat at [e] matb@cix.co.uk

Top five Poser tips

Don't waste time struggling to work everything out yourself – here are our essential tips...

1 Every serious *Poser* user needs the ability to create and edit their own textures, and to do that, you'll first need a way to generate and realign your own UV map templates. By far the cheapest and most direct solution is *UV Mapper*, which is available as a shareware program. However, you can also buy the full Pro version of the program for a trifling $50 (about £35). To find out more, go to [w] www.uvmapper.com

2 Texturing *Poser* figures is a particular skill that has unique eccentricities not encountered by other model textures. To find out all the considerations, check out BTSculptor's superb pair of tutorials, which are available from Renderosity priced at just $16.67 (about £10) each. You can get your hands on these pearls of wisdom by visiting [w] market.renderosity.com/softgood.ez?ViewSoftgood=13731

3 It takes ages to create MAT and MOR Pose files by hand, manually editing text files. Why waste your valuable time when there's a great free program that does it for you? You can get *MAT Pose Edit 2.02* from Renderosity's Free Stuff area. The program also helps you to create Pose and MOR (morph) files. Go to [w] www.renderosity.com/freestuff.ez

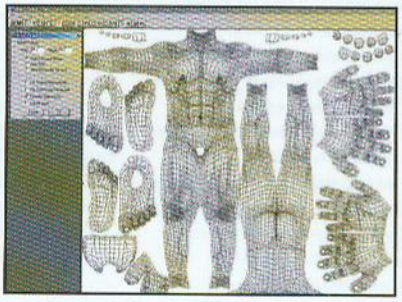
4 High-resolution textures need high-resolution templates. Don't struggle and waste time with resized templates when it takes less time to simply create a fresh template at the required resolution with *UV Mapper*.

5 You don't have to store your MAT files in an existing Pose folder. Instead, you can create a new sub-directory within the Pose directory, but don't nest sub-directories.

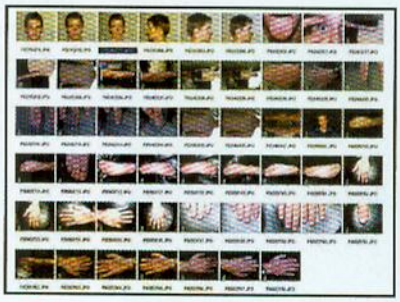
For quick fixes for your digital art and 3D problems, post your questions in our online forum at [w] forum.computerarts.co.uk

Creating perfect skin

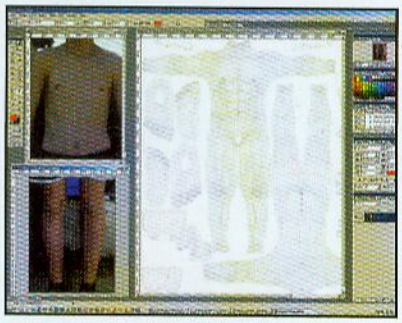
You can spend weeks creating pixel-perfect *Poser* textures, but here's a way to get good results fast...



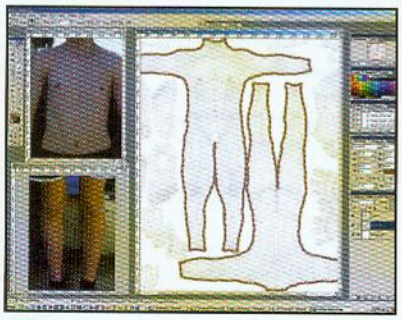
1 Create a texture template. The easiest way is with *UV Mapper Pro*. Navigate *Poser's* directories to your Michael geometry file and load it. In the Select menu, choose Select by Material, then select all head parts. Press [\] to hide the selection, save the Template at the required resolution, and ensure that Exclude Hidden Facets is checked. Repeat the process, selecting all body parts.



2 Take your photographs. You can see the way the templates are divided and which parts to focus on. Shoot outside on a cloudy day with a long lens to flatten the image and reduce shadow. If you have a low-resolution digital camera, you may wish to photograph each body part in many sections in close up. Whatever your camera, take lots of head shots from multiple angles. Try not to include hair.

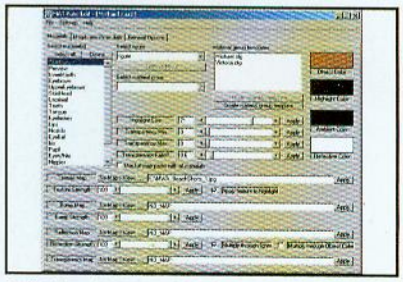


3 Open *Photoshop* and create a blank background the same size as your template. Load your template and reduce its opacity to 20 per cent – that should be just enough to see the shape of the contour lines. At all times you'll need to ensure that the template layer is on top of any other layers you add. Load your photos.



4 Create a new layer below the template layer. Determine the average skin colour in your photo and using a 10- or 20-pixel hard brush in that colour, draw a line around the edge of the template on the new layer so that it protrudes outside the template borders by a few pixels. This hand-drawn seam will ensure your edges match up.

5 Cut the body photos out of their background and paste them into another layer below the outline layer you just drew. You can now stretch and manipulate the photo parts to create an approximate fit using the template layer as a reference for the details. Use the Clone brush, Airbrush and Blend tools to blend the edge layer into the skin layer and any body parts together. Save the texture as a JPG in your *Poser* textures directory.

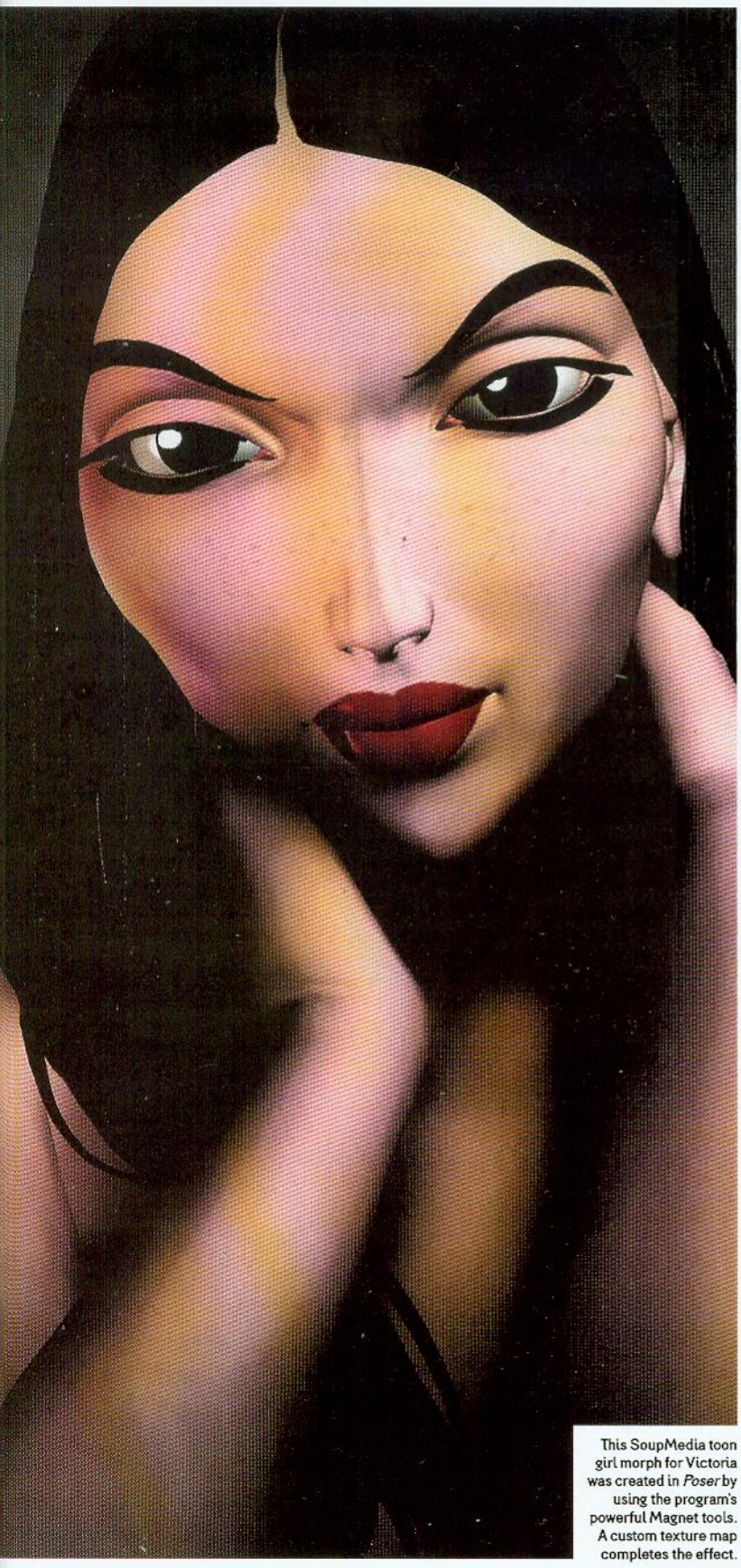


6 Using *MAT Pose Edit*, load the Michael figure with the Load Character File option. Don't waste time loading the character's morphs. In the Materials screen, select a body part, then go to the Texture Map section and load the texture you just created. Work through all the head and body parts doing the same. When you're done, save the file as a Pose file to the *Poser* Poses directory. The MAT file is complete and ready to apply.

SECTION **THREE:** PROJECT 5

Magnetic toon effects in Poser

Create some stunning cartoon effects using the DAZ Victoria model on your CD...



This SoupMedia toon girl morph for Victoria was created in *Poser* by using the program's powerful Magnet tools. A custom texture map completes the effect.

Without doubt, the easiest way to make any kind of customised *Poser* character is to use a modelling program — but that's not to say it's the only way.

Curious Labs' *Poser* is one of the most widely used pieces of software in the 3D world, but many artists have a tendency to look on it as a quick-fix solution, and invest too little time, if any, in experimenting and exploring the possibilities the program allows.

For this tutorial, we'll use DAZ Productions' popular Victoria 1.0 model (available on the cover CD) to create a stylised facial morph using a combination of the Victoria morph dials and *Poser's* own deforming tools.

You'll find the basic deforming tools — Scale, Rotate, Twist, and Taper — in the Edit menu. Admittedly, these are of limited use, but *Poser* does have another trick up its sleeve, which, in the right hands, can be extremely useful. Magnets were introduced in version 4 of *Poser*, and can radically alter the appearance of objects by resizing and stretching features. These distortions can then be 'captured' and used as morph targets. As with most things in life, a basic understanding of how magnets work will help you to unlock their full potential.

Strange attractors

A magnet is made up of three components: the Magnet Object, the Magnet Zone, and the Magnet Base. The Magnet Object is what you use to manipulate and distort the surface of your body part or prop; the Magnet Zone defines the area of distortion; and the Magnet Base defines the centre of rotation, or zero point of scale, of the area being deformed.

In the Properties palette of the Magnet Zone, you'll find an option entitled 'Edit Fall Off Graph'. Click this and a graph appears, depicting the zone's area of influence. This is a smooth curve with two control points. You can edit the zone's area of influence by adding extra points — to do so, just click on the line. Raising a point increases the influence; lowering it decreases the influence. Note, however, that there's no way to delete added points.

Using the Group option in the Zone's Properties palette allows you to use *Poser's* Group Editor to select individual polygons for distortion. This is especially useful if, say, you happen to be working on an area around the eyes, but you don't want the shape of the eyes themselves to be affected.

Once you've applied a magnet to an object in your scene, you can manipulate it like any other object using either the edit tools, the parameter dials, or a combination of the two.

Making faces

If you're creating a complex morph such as a stylised face, then you'll probably be working with several magnets at once. This is where *Poser's* Lock Figure option comes in pretty handy, preventing you from accidentally moving a magnet once you've positioned it just right.

When re-sculpting features, it's imperative that you work from different angles. Keep an eye out for any creases appearing in the mesh — always a problem when exaggerating features — and when working on the lower face area, don't forget to check inside the mouth.

Once you're happy with your magnetic handiwork, simply save it as a Morph Target, delete the magnets, and apply the new morph.

If you have a 2D paint program such as *Photoshop*, the use of a custom-built texture map and transparency map can help to refine the features further still.

Supporting files for this tutorial can be found on the cover CD in the Software\Tutorials\In the Mag\Poser2 folder. You'll also be able to use our Victoria 1.0 model, free from DAZ3D ([w] www.daz3d.com). Turn to page 8 for the special upgrade offer available to all *Computer Arts Projects* readers.

Expertise provided by Ian and Dominic Higgins at SoupMedia ([w] www.soupstudio.com)

Top five Poser tips

A few pointers to help make your time in *Poser* a little more productive...

1 One of the most important pieces of advice for any project is to remember to save your work regularly. It's also a good idea to save the work in various stages as different files. This way, if you make a big mistake at some point, you won't need to start again from scratch. Saving your work like this also allows room for a lot more experimentation.

2 Move the lights and change camera angles as you work to spot any potential problem areas such as creases or folds in the mesh. This is particularly problematic when working on stylised faces. If you have *Poser Pro* or *Poser 5*, take full advantage of the multi-view set-up.

3 Are you using *Poser Pro* or an earlier version of the application? If so, before you start modelling your cartoon character, you need to increase the focal length setting of the face camera. The default 25mm is too wide an angle or close-up work and therefore gives a distorted view of your model. A setting somewhere between 55–60mm is ideal.

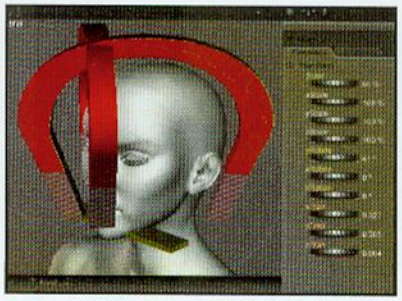
4 Here's a useful tip for working with Magnet Zones: with the zone selected, go to the Display menu, select Element style, and then from the option list, select Wireframe. You now have a 3D view of the Magnet Zone.

5 Think of lighting as another modelling tool in your *Poser* arsenal, rather than just a means of illuminating your scene. Good lighting should always enhance the appearance of your model and create atmosphere in your scene. Be prepared to spend some time experimenting with different lighting effects, and get yourself a good book on photographic or filmic lighting techniques – *Painting with Light* by John Alton is highly recommended. In this book you'll discover how to make your model look like a movie star. SoupMedia also provide tutorials and advice on their Website, which you can find at **[w]** www.livingposer.com

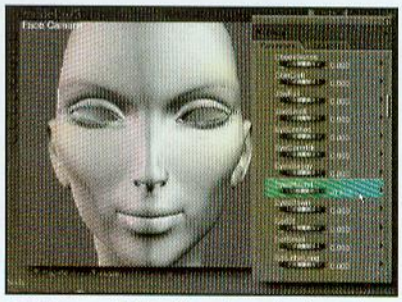
Unlocking Poser's modelling tools

Stretch Victoria and Michael models, not to mention your creativity, to new limits...

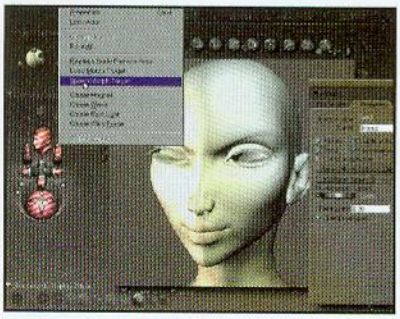
1 The basic face shape for our toon girl morph was created with three Magnets. The first Magnet was used to bring the forehead up, rotating it slightly forward. The second Magnet reshaped the lower face by raising it and stretching it forward. The third Magnet was used to shape the chin and bring the mouth forward. Note also that the eyeballs were made invisible.



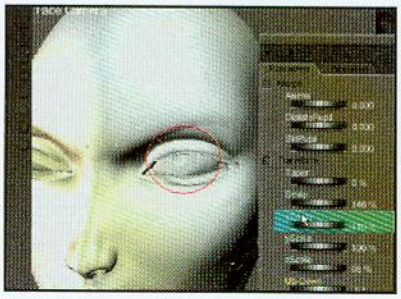
2 To create that large 'wrap-around eye' look, the X scale of the Magnet object was set to about 168 and the Y rotate to 41 (-41 for the right eye). The Magnet was then moved along the X tran and up along the Y tran. The Magnet Zone was carefully positioned to also exaggerate and shape the cheekbones. Note that the zone has been angled, and the Z Scale extended.



3 Once we finished the major reshaping work with the Magnets, we turned our attention to the morph dials already available on Victoria (you'll find full-sized screenshots on the CD if you need to copy the settings). These were used to shape and refine the features, and helped to inject character. If you're using version 2 or 3 of Victoria, you'll find an almost infinite choice of combinations.



4 With the modelling work completed, the next step is to 'capture' the information into a Morph Target. To do so, make sure the head is selected, then click Object, followed by Spawn Morph Target. A dialog will appear: just choose a name for your new morph and click OK.The new morph will be added to the list of head morph dials.



5 With the eyes visible again, scale them to fit the amended sockets. This part can require a fair amount of patience. With the eyes fitted, it's important you check to make sure they don't pop out as you move them about. For our toon girl character, the eye settings are: Scale: 146, X Scale: 110, Z Scale: 96, X tran: 0.021 (-0.021 for right eye), Y tran: 0.035, and Z tran: 0.018.

6 You can refine the face further in a 2D paint program such as *Photoshop*. Here we've applied a custom-built texture map and transparency map to the face. The transparency map has been used to reshape the eyebrows. The result is a face that has more character. **ca-p**